THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. XLVIII. SATURDAY, MARCH 27, 1886. No. 13.

ORIGINAL LECTURES.

MEDICAL ETHICS.

A Lecture delivered, by invitation, at the Woman's Medical College of Pennsylvania, February 3, 1886.

BY HENRY HARTSHORNE, M.D., LL.D.,

(Reported by Laure Hulme.)

TEN years ago, there was but one opinion amongst physicians in this country in regard to medical ethics. Only within two or three years has a considerable discussion been started anywhere on the subject. Frankly, I may say that I believe not only in medical ethics but also in a definite code, in which required principles are clearly stated, so that they may be understood and applied by all.

But some may, at once, ask the broad question, What is the need of ethics at all? Will not the conscience of every man and woman suffice to show what is just and proper? However this may be, leading minds in all ages and countries, outside of Christendom as well as within it, have busied themselves with the subject; from Moses, Confucius, Aristotle, and Cicero, down to Herbert Spencer. We owe to Christianity the most compact and summary ethical precept, foreshadowed by Confucius on its negative side, the Golden Rule: Do unto others as you would that they should do to you. Again, it may be said, Why make a specialty of *medical* ethics? Simply because there are relations belonging to the medical profession peculiar to itself. There might as well be, also, legal ethics, and commercial ethics. If there are none such definitely made out, so much the less the advantages to law and commerce; so much the better off is our profession. Even war, which many believe to be the sum of all evils, has its code of international regulations.

Fully, then, do I believe in the Code; this Code, which I now have in my hand, which originated in Philadelphia about half a century ago; being based on the "Medical Ethics" of Dr. Thomas Percival, of Manchester, England, and which was published by him in 1803. It was adopted by the American Medical Association in 1847, and thus became the recognized code of the medical profession in the United States. I have no idolatry about it at all; but, on reading it again and again, in the light of observation and experience, I believe it to contain sound principles, so well expressed that it can scarcely be improved upon to-day.

1. Remarking upon those principles, I must begin with a glance at the responsibility of the student of medicine. You are bound, in view of the work before you, as so soon to become members of the profession, to be in earnest about it now; to neglect nothing; to be thorough in all parts of your preparation. Opportunities are now before and around you, clinical, didactic, and demonstrative, such as, if not used, you may never, elsewhere and hereafter, be able to make up; and then they will be sadly missed all through your lives. Not that it is well so to toil and strive as to endanger health; that would be to throw away the very instrument of your service—your physical and mental energy and capacities. But, by taking *time* for your preparation, in a four or five years' course, all may be done to make you really ready for the critical and arduous duties of the physician, surgeon, and obstetrician.

2. We speak next of the ethical relations between physicians and their patients. Whenever a doctor is called to attend a case, a charge is undertaken which may, in any instance, involve the issues of life and death. I remember a hospital case of amputation of the thigh, which was made necessary by the sequences of the bite of a mosquito. Erysipelas may add danger to the slightest of external injuries; and blood-poisoning, or some other momentous complication, may attend any ordinary medical affection.

No case, and no patient, must be, for an hour, neglected; not the pauper in his hovel any more than a queen, a president of the United States, an Astor or a Vanderbilt. All necessary visits should be paid to the one as certainly as to the other. Unnecessary visits are sometimes specially desired by those who are willing to pay for them; these should then, of course, be willingly made.

Is it the duty of a physician to take charge of every case to which he may be called? If no other practitioner is within reach, it is so. Should another be obtainable, it is at his option to attend or decline, from pressure of other calls, weariness, or even disinclination. This last, however, ought usually to give way when a patient or family has a particular and urgent preference for the physician applied to. Confidence in a medical attendant is always an element of great comfort; sometimes, even, of safety.

To do the very best we can for every patient entrusted to our care; that is the sum of obligation on the part of the practitioner. In law, a reasonable and usual amount of professional knowledge and skill is the sufficient requirement; but in law as well as in ethics neglect is always culpable. Does the same obligation equally apply, it is asked, to hospital patients? Certainly. Such patients owe some return for the great advantages they receive without cost to themselves. It is right that they should afford the means of clinical observation and instruction. It is proper that the facility of controlling and watching treatment in hospital wards should be utilized, in the careful trial of new remedies; but never without every precaution to secure safety, and never without a reasonable probability of benefit to the patient. No physician or surgeon has a right to institute a treatment upon a charity patient which he would not be willing, in similar circumstances, to have tried upon himself. And, for a physician to perform upon a charity patient a merely physiological experiment, which he would not venture to have performed upon himself, is without justification.

This element of *humanity* toward all ennobles the vocation of the practitioner; for true humanity

"The lowliest duties on herself doth lay."

What weary hours, what menial unwelcome services, are thus not only made tolerable, but are cheerfully accepted!

Confidential intercourse is the necessary privilege of physicians with their patients. Its secrecy should be sacred. The law in some places does, and everywhere it should, sustain this secrecy as inviolable. Exceptionally, to preserve life threatened by an intended crime, would be (if such should ever happen) a right occasion for a physician to use knowledge confidentially obtained from a patient. Or, if the health and happiness of another should be about to be endangered by a patient affected by a contagious disease, a physician may warn that patient of his duty, if necessary, at the peril of having the warning extended to the person so put in danger. But knowledge conveyed by a patient in order to make his treatment possible and effective, should be considered as the patient's own property; not that of the practitioner.

Regard for the *mental* comfort and advantage of his patient must always be sedulously maintained by the physician. (Excuse the expression *his* patient; since we have in English no possessive common to the two sexes.) Cheerfulness (not levity, of course) ought to be cherished as a boon in the sick-room. Should we, then, flatter and falsify, even in view of the worst prognostications? No. Such a course is both immoral and inexpedient. Some physicians appear to think differently. I knew one of the acutest of our diagnosticians to say to a patient, two hours before her death, "I am glad to see you so much better this morning." Probably this was said almost unconsciously, under the force of habit; a bad habit.

Yet we are to use the "cordial, hope," as far as we can. While there is life there is hope. The word *if* is often very serviceable. "Doctor, is it possible that I can get well?" "You know that you are very ill; but *if* we can only find this cough giving way, your night's rest and strength coming again, then—." But it ought to be the physician's duty, under most circumstances, to inform the family, or nearest friends, of the patient, of the probable approach of death, leaving it to them to take the responsibility as to when and how it may be conveyed to him.

Sometimes the physician has, by the conditions of the case, made himself the nearest friend to his patient. Then a duty may spring up beyond the professional line, as between man and man, or between woman and woman. For example, to warn an inebriate, just rescued from delirium tremens, or a victim of other vice, barely escaping its worst penalties, of the danger possibly not again, if incurred, to be so overpassed, may become a measure of moral treatment which no one else can administer so well as a medical attendant.

When a patient or his family desires a consultation, it ought not, as a rule, to be declined. The attending physician rightly has a voice as to the selection of a consultant. If one who is for any tangible reason not acceptable to him is insisted on, he has the alternative of withdrawing from the case.

Responsibility in regard to attending members of one's own family during illness is rather an individual matter; it cannot be reduced to rule. To show how differently physicians feel about it, I may mention two instances. I was told by the elder Professor Hodge that, after he had been married and in practice for several years, his child was threatened with a convulsion. He cried out, at the moment, forgetting his own vocation, "For heaven's sake, somebody run for a doctor!" My other example is of a contrary kind. The late Dr. Joseph Parrish and Dr. Joseph Hartshorne, early in this century, were intimate friends. The wife of the latter being ill of a prevailing fever, Dr. Parrish feared that, as his friend, a pupil of Dr. Rush, was a frequent user of the lancet, he might resort to that remedy in his wife's case, with the effect, should the result prove fatal, of not only her loss, but also that of his reputation and practice. He therefore generously offered his services in consultation, The offer was declined; the doctor bled his patient, and she recovered, surviving them both for many years.

A few words here in regard to *fees*. Ours is a liberal profession. As was the case from the beginning with the ministry of the gospel, and for a long time, also, at least in Great Britain, that of the counsellor-at-law, the service of the physician was once recognized as being not measurable in coin or currency. What would not a man give, if needful, in return for his life, or for rejuvenated health? But, from the necessity of the case, since physicians, like others, must live, and must not be left to the caprice of gratitude or ingratitude of patients; custom, finally fortified by law, has established a claim for definite charges for medical, surgical, and obstetrical services. It is right to make full usual charges when patients are able to meet them. Underselling or underbidding each other in medical practice is an unbecoming and, in the long run, a mistaken policy. With the poor, reduction must be made. How to do this, may be safely left to the practitioner, remembering only the common duty of humanity.

3. It is in regard to the duties of physicians toward each other that most of the questions have arisen which have been and now are in debate. What are the principles involved? Clearly, those of justice, honor, and courtesy. Justice, in the full recognition of the rights and valid claims of others; honor, which has in it an element of generosity, holding itself above mere Shylock justice or mean exaction of technical claims; and courtesy, which considers the feelings as well as the rights and interests of others.

First, a physician should not *advertise*. Why not, as it is done by those of almost all other vocations? Because the mercenary idea of competition, by a public display or assertion of advantages or successes, is incompatible with the liberality and dignity of our profession. Theoretically, it is not always easy here to draw a precise line. Three-quarters of a century ago, a physician, who afterward obtained a large practice, refused to put up a sign on his shutter, or even to have his name on his door. His friends, he said, knew his residence, and others could find it out if they would. This would hardly do among us now. Abstractly, it is not easy to see objection to the simple announcement of a name and location, in the daily papers; but usage has never made this acceptable. Removals are sometimes so announced, for convenience, especially in large cities.

Indirect advertising is very derogatory to the dignity of the profession. Examples of this are mentioned in the Code: "Publicly offering advice and medicine to the poor gratis, or promising radical cures; or to publish cases and operations in the daily prints, or suffer such publications to be made; to invite laymen to be present at operations, to boast of cures and remedies, to adduce certificates of skill and success, or to perform any other similar acts. These are the ordinary practices of empirics, and are highly reprehensible in a regular physician."

Secondly, a physician must not hold a patent for any medicine, nor a surgeon for any instrument. Why not? Because the broad purpose of contributing to the preservation and restoration of health, prolongation of life, and relief of suffering, is not to be limited by any restriction for individual advantage, such as patents impose. Monopolies and secret remedies are thus ruled out. Nor should physicians encourage the use of patent medicines, whatever may be their proprietorship. A difficulty is here imagined to exist, if a remedy of which the composition is kept secret should be proved to have positive and superior value—have we then a right to withhold its benefits from our patients? Our answer is, that such a question is not a practical one, in the present state of science. I do not believe that there is in the world to-day a single *nostrum*, of real medicinal value, the composition of which has not been, or may not be, ascertained by chemical analysis and made known to the profession. There are, it may be added, principles of ethics applicable to pharmacy also; and these are now obtaining increased attention on the part of pharmacists, in this country and elsewhere.

May a physician put up his own prescriptions? Certainly, if he prefers it, and has time and proper facilities. In the country, it is sometimes a necessity to do so. May he employ or designate one druggist only, to be resorted to by his patients? It is not in accordance with sound ethics to do so for a percentage of profits. It is possible, however, that in some neighborhoods there may be one druggist so much more reliable than others that it is right to recommend him for the advantage of patients.

No moral principle is involved in *Latinizing* prescriptions. Besides old usage, I know of no good reason for it, unless to prevent patients or their friends from being disturbed in mind by finding out what medicines are prescribed. This concealment is, nowadays, seldom allowed. Doctors are not autocrats now, as they were fifty years ago. The schoolmaster, being abroad, has carried his interrogation mark into the sick-room and the apothecary shop; and, generally, the interrogations have to be answered. Yet an attempt suddenly to change prescription-writing into English would be likely to lead to confusion or obscurity, which might for a time be even dangerous.

Although not here quite in place, it may be remarked that a very heavy responsibility rests with every physician, that his prescriptions be clear and accurate. Never let a written prescription leave your hands without very carefully going over it all, once, if not twice. I have a grudge against Dr. S. Weir Mitchell, because in his story, "In War Time," he makes it seem possible for a physician to poison his patient to death by accidentally giving him an aconite lotion instead of an intended mixture. Such an occurrence should be quite out of the question either in truth or in fiction.

Following the Code, we may refer to the very proper usage, of physicians attending each other's families without charge for such service. Practitioners are stated to be entitled to such mutual aid. Neither the letter nor the spirit of the Code extends the claim, as of right (whatever may be done through courtesy) to those who, though graduates in medicine, are not practitioners. With these, also, there is a limit to the obligation which ought to be incurred, at least by one who is affluent, in arduous or prolonged attendance. For this, an *honorarium*, when offered, should not be refused.

Exchange of attendance upon patients, on account of absence, sickness, etc., ought to be freely consented to; the fees (except for labor cases) going to the practitioner thus substituted by another. Such services, however, should be mutual, as far as possible. A wealthy physician should not, during repeated long vacations of mere pleasure, impose upon a junior practitioner the toils of his practice, without remuneration.

One physician acting for another during his absence, has no right to supersede him with any of his patients on his return. I will not affront the professional ear by speaking of the possibility of one practitioner stealing another's practice; but such misdoing is at least conceivable, if not possible. A high-toned physician will decline, even though urgently requested, to take charge of a patient or family attended during, and on account of, the absence of another; at least without that other's express consent.

Consultations, as already said, should not be refused when asked for. I must differ slightly from the Code where it says that "in consultations the good of the patient is the sole end in view." It is certainly the chief end; almost the sole ultimate end. But it is also a right purpose, especially when the attendant is a young practitioner, to have his judgment sustained, and the confidence of the patient and his family strengthened, by the concurrent opinion of a consultant. It is well understood that there are some surgical and obstetrical operations which should not be performed without a consultation, unless under circumstances which prevent its being obtained, and in the presence of a clear and urgent necessity.

With whom should consultations be accepted? Of course, with all educated and graduated practitioners of regular medicine, whose personal characters present no obstacle. I say, of *regular medicine;* accepting the language of the Code: "No one can be considered as a regular practitioner or a fit associate in consultation, whose practice is based on an exclusive dogma, to the rejection of the accumulated experience of the profession."

Here is a point of cardinal difference between the advocates of the old and of the new, or of no code. Why, it is argued, may we not accede to the popular view, that there are diverse "schools" of medicine, which may bear friendly relations to each other, and sometimes interchange consultations? We answer this, first, with a counter-question: Is not medicine a science? And is not science always one? Can there be different *schools of science?* Are there two or more schools of chemistry or of astronomy? It is true there are, or have been, the old and the new notations; but they concern

nomenclature only; the great facts and laws of chemistry are, in treatises and in laboratories, the same for all. Astronomers still have somewhat different theories of the sun's corona, of the nature of comets, and of the causation of solar heat. But the science of astronomy is one; and has been so, since Galileo, Newton, and La Place; except only, as to facts, that brother Jasper, of Virginia, still believes the sun to move around the earth. When, then, any one claiming to belong to a school of medicine tells us that to divide a particle a thousand times increases a thousand-fold its medicinal potency, is this science, or is it—Jasperism?

But, the great fatal fault to be found with homœopathy, hydropathy, eclecticism, and the rest, is, not what they would add, but what they subtract; by their repudiation of the accumulated experience of the profession. If it were demonstrated that Hahnemann's principle of infinitesimalism were true, it ought to be, and would be accepted and incorporated into the body of medical science. Or were his theory of "similia similibus" shown to explain any therapeutic results, or to be capable of application in practice, it should and would be accepted; but not to the rejection of anything else which has been already known and proved. The exclusiveness of such dogmas is that which condemns them at the bar of medical ethics.

Yet, it is urged, What will you do in regard to emergencies? Will you allow a patient under the care of a homœopath to suffer, and perhaps die, rather than aid him with your advice in consultation? I deny that a regular practitioner need ever be driven into such a dilemma. If it be a difficult diagnosis for which aid is wanted, let the homœopath step into another room, and your opinion can be given without recognition of his professional standing. Or, if it be a desperate case requiring new light upon treatment, let him withdraw altogether, or be dismissed, and the case may then be taken charge of by a regular practitioner. In any case, as to practice, what is the use of trying to combine things which are, in their nature, incompatible? Materia medica, through its handmaid, chemistry, may answer this question: only a precipitate can be thrown down, which must be entirely inert and useless.

Time does not allow me to dwell on the almost minute, but very sound, advice of the Code in reference to the duties of physicians in connection with consultations. Even etiquette, however, is not without its propriety and value here; as in the usage according to which the attending physician enters the sick-room first, and leaves it last; and which forbids any opinion or direction being given the patient or family by the consultant, the attending practitioner being the spokesman of the united judgment resulting from the consultation. It is true that the regular attendant may sometimes desire the consultant to convey his opinion directly to the patient and family; and then there can be no objection to its being done.

An embarrassing example of the obtuseness of many unprofessional people in regard to the needs of medical ethics, occurs in the frequency with which a physician is asked to give an opinion, without consultation, in a case under the care of another. One may sometimes be thus "trapped" into an unintended interference. It is well, in order to avoid this, to omit, unless for urgent reasons, social visits even to near friends, when under medical care for illness.

Nothing can be plainer, according to the simplest conceivable code of medical honor, than that a consulting physician should be scrupulously careful of the reputation of the attendant whom he meets. Such a remark, for example, to any one concerned, as that "If I had been called in sooner, I might have helped the case," is inexcusable. A consultant should, as a rule, refuse to take charge, individually, of a patient whom he is first called to see in consultation with another.

Similar care is needed, and is sometimes annoyingly baffled, in regard to changing from one physician to another in the course of an illness. This should always be discouraged; but it cannot in every case be forbidden. The essential point of ethics here is, that a new practitioner cannot begin to attend, except in consultation, unless the old one has left, or has been formally dismissed from the care of the case. Few physicians long in practice have escaped being sometimes undesignedly put in a wrong position in such a matter; unprofessional persons so obstinately maintaining that "medical etiquette is all nonsense."

4. Physicians have important ethical relations to the general public; to the communities in which they live. They are needed often as sanitary advisers. There is now a profession, that of sanitary engineering, among whose members are men of eminent ability, knowledge, and usefulness. Yet, without a medical education, I cannot think that the highest qualifications for extended sanitary service can be well obtained.

Medical attendance upon medical charities, as hospitals, dispensaries, etc., involves very important and often laborious duties. How far these should be gratuitously performed, is an interesting question. On account of the advantages, in experience, reputation, and acquaintance, which they afford, hospital and other like appointments are often sought by competent men and women, without the inducement of salaries. Yet institutions possessed of large means ought not to require the expenditure of much time and labor on the part of their medical officers without remuneration.

In times of the prevalence of epidemic diseases, as cholera, yellow fever, etc., physicians should not only be assiduous in rendering professional service, but they should be examples of fidelity, courage, and self-sacrifice to others. What the first Napoleon called "two-o'clock-in-the-morning-courage," is here needed, a heroism as genuine as that of the field of battle or the quarter-deck of the man-of-war. However we may estimate the opinions of Robert Koch in regard to the causation of cholera, none can hesitate to honor his intrepid devotion to the cause of science, shown in his visits to Egypt, India, and France, carrying on his investigations in the midst of danger and death. Whoever else may leave a city or community during a time of pestilence, the physician should, like the captain of a ship at the time of a wreck, be the last; never leaving his post till the peril has passed by, or (which is often the most desirable consummation) all liable to attack are removed to an uninfected locality.

Lastly, there is a duty owing, as the "*esprit de corps*," from physicians to the profession itself as an organized body. You are to endeavor, under all circumstances and associations, to maintain its good name, in the view of the general public. Loyalty to the profession is a needful virtue. Let it not have its title degraded by any

restrictive epithet. Never accept *allopathy* as a synonym for regular scientific medicine. That term means only the opposite idea to the "similia similibus" dogma of homœopathy; and under no such designation should the broad, catholic scope of legitimate medicine be "cabin'd, cribbed, confined."

Is it not easy, without any binding Hippocratic oath, to be loyal to such a profession, with such possessions and attributes; with the dignity of an extended and advancing science, and the intellectual fascination of a skill-demanding art; its duties only and always those of benevolence; its rewards, besides reputation and a moderate competence, if not wealth, the higher treasures of personal and family friendships and attachments, often among the warmest, strongest, and happiest known in human experience?

ORIGINAL ARTICLES.

DISEASES OF THE UTERINE APPENDAGES: THEIR RELATION TO PELVIC ADHESIONS, DISPLACEMENTS, AND ABSCESSES.[1]

BY W. GIL WYLIE, M.D.,
PROFESSOR OF GYNECOLOGY IN THE NEW YORK POLYCLINIC.

SINCE May, 1883, I have operated on thirty-seven women for the removal of diseased uterine appendages, not including ovariotomies and other operations for large tumors of the ovaries. Twenty-five of these have been reported (fourteen on January 15, 1885, and eleven on June 19, 1885), and published in the *Medical Record* of February 7, 1885, and August 29, 1885.

Of the thirty-seven, thirty-three recovered and four died. Two of the latter were complicated by pelvic abscesses at the ends of the tubes and around the ovaries; a third was complicated by hæmatocele attached to the left ovary, and the fourth, on account of extensive adhesions and degenerated state of the ovaries, required considerable exposure of the peritoneal cavity in operating. Thus there was material liable to cause autoinfection in these, and none were simple cases.

Thirty-four of the thirty-seven cases had marked peritoneal adhesions. More than one-third were well-marked cases of pyosalpinx, and eight were either complicated by abscesses or the tissues about the tubes and ovaries were infiltrated with pus. The sac of one abscess that was lifted up with an ovary held five ounces of pus, and in a second case a similar abscess held three ounces. Twenty-three were hospital, and fourteen private cases. Three of the former and one of the latter died.

The hospital cases were chiefly selected from three large dispensary clinics, where every year hundreds of women suffering from local peritonitis, the result of diseased tubes or septic poison reaching the peritoneal cavity through the Fallopian tubes, present themselves for treatment. Most of the private cases came to me from my friends in the profession who knew that I was especially interested in such cases. If one would follow the text books on gynecology, most of these thirty-seven cases would have been classed as chronic cellulitis; four or five would have been called cases of pelvic abscess, and quite a number would have been called ovaritis.

With the exception of three or four cases operated upon for cystic degeneration which was supposed to be the cause of hystero-epilepsy, almost all were at times bedridden by repeated attacks of local peritonitis. It is yet too soon to speak positively about the results of the operation in all classes of cases, but I can say without hesitation that in those cases where the subjective symptoms were chiefly actual local pain and physical inability to go about without causing persistent pain—and almost all the cases of pyosalpinx would come under this head—the results were good and satisfactory both to the patient and physician. In many cases the relief from pain was gratefully acknowledged at once.

In those cases where the subjective symptoms were chiefly reflex and of a nervous order, the immediate results were by no means always satisfactory, although, many completely recovered after being seemingly unimproved for several months. I have repeatedly refused to operate on this class of cases, unless I could plainly make out by bimanual examination that the ovaries were enlarged by cystic degeneration. I have yet to see a well-marked case of hystero-epilepsy or decided hysteria operated on, in which the ovaries were not found in a state of cystic degeneration or very much atrophied. And these are nearly always associated with an imperfectly developed or atrophied uterus.

The class of cases which will not only test the educated sense of touch and practical ability to diagnosticate and skill to do a successful operation, but will also give many opportunities actually to save life, are to be found among those cases complicated by small pelvic abscesses. The ability to diagnosticate will be shown by detecting them before they have either penetrated into the connective tissues below the peritoneum and formed large pelvic abscesses, or, what is of still greater importance, before they have broken through the layer of lymph thrown out by the peritoneum to shut the diseased organ and tissue from the peritoneal cavity, and cause general peritonitis and death. The skill in operating will be shown by either removing intact the diseased organ and sac of the abscess, or by removing most of the sac and washing and draining the peritoneal cavity so as to avoid septic poisoning and death.

It is true that the vast majority of pelvic abscesses open into the vagina or intestines, or somewhere below the peritoneum, and that they do not often kill, but we also know that many burst into the peritoneum and cause death without ever being detected until the autopsy is held. Beside we know what tedious affairs pelvic abscesses are, even when opened and drained by the vagina.

You will better understand the importance that I attach to the above remarks, when I tell you that, in my opinion, certainly four out of five of all pelvic abscesses have their origin in either the Fallopian tubes or the ovaries, or in the inflammatory tissue that mats these organs together when diseased.

[1] Read before the Medical Society of the State of New York, February 2, 1886.

If my views on the surgical pathology of diseased uterine appendages are correct, it is easy to explain why, if pelvic abscesses are really abscesses beginning in intraperitoneal tissues, they should nearly always penetrate below the peritoneum, and only now and then cause general peritonitis by breaking into the peritoneum.

I think it will also explain why the bladder is, comparatively speaking, so seldom involved in peritoneal inflammation, and why the indurations and thickenings due to peritoneal inflammation, even when below the plane of the vaginal junction, are found to be not indurated cellular tissue, as Dr. Emmet says they must be if below this plane, but are really the prolapsed ends of the tubes and ovaries surrounded by peritoneal exudations, as is now so frequently shown by laparotomies and autopsies, whereas the indurated tissue due to cellulitis so much written about by some of our most honored teachers, has been searched for in vain.

It will, I think, also make clear the real significance of retroversions with adhesions, and lateral version with adhesions, and explain the great difficulty in getting satisfactory results in such cases from the use of pessaries, and also explain why their use every now and then is followed by attacks of local peritonitis.

To understand clearly what takes place when the uterine appendages are diseased, it is necessary to remember that the broad ligaments are attached to the uterus from the vaginal junction nearly to the top of the fundus on either side, and extend laterally to the side of the pelvis, where they are attached in such a way that they cannot be shortened by contraction or thickenings of the tissues, or twisted either forward or backward without more or less displacing the uterus, or greatly impairing its normal mobility; that the ovaries lie partly embedded in the peritoneum which covers the posterior walls of the broad ligament; that the Fallopian tubes run along the upper and anterior border of the broad ligaments, and are covered by the same fold of peritoneum that covers the broad ligament, except at their fimbriated extremities, where they open directly into the peritoneal cavity; that one of the fimbriæ of each tube attaches it to the ovary of the same side and holds its open end in such a way that any fluid escaping from it would fall behind the broad ligament, especially when the patient is in bed or upon her back. Now if the upper border of the broad ligament is carried backward and downward, not only are the tube and ovary prolapsed, but the fossa behind the broad ligament and in front of the posterior wall of the pelvis is covered over by the broad ligament with the tube and ovary rolled in behind it, and if the broad ligament is made adherent in this position by adhesion of abundant lymph, practically, the tube and ovary of that side are turned out of the cavity of the peritoneum. If this be true, it is easily understood why an abscess found in the end of a tube or in the ovary will more frequently penetrate into the connective tissue below, instead of upward through the several layers of the whole thickness of the broad ligament, which is so rich in bloodvessels, and, therefore, so well prepared to resist ulceration and perforation. In those cases where I have seen perforation into the peritoneal cavity, the distended tube or suppurating ovary has not been rolled up in the broad ligament, as is the rule when they are diseased, but is above the broad ligament, or the growth has, by rapid increase in size, unrolled the broad ligament instead of penetrating the tissues below.

The following, on the surgical pathology of diseased uterine appendages, is taken with very slight change from my paper read before the New York Academy of Medicine, January 19, 1885, and published in the *New York Medical Record* of January 24, 1885, in which I give in full my views of diseases of the Fallopian tubes, and the details of operating for their removal.

The first effect of disease reaching a tube, is to cause it to become engorged with blood; as it is loosely attached to the upper border of the broad ligament, it sinks lower in the pelvis covering or folding over the ovary, and as the beginning of salpingitis, after labor or an abortion, is so often associated with an enlarged uterus, this organ sinks lower, and as the patient during the acute stage is, as a rule, on her back, the fundus inclines backward. Now, suppose the uterus is enlarged, lying backward, and the disease affecting the uterus extends to the tubes, they swell, sag backward and downward, covering the ovaries, and as soon as the discharge or the disease reaches the peritoneum through the open end of the tube the peritoneum becomes inflamed, lymph is thrown out gluing the different organs together; the end of the tube and ovary being embedded under the broad ligament, which by lymph is made firmly adherent to the tissues on the posterior wall of the pelvis, thus virtually shutting out the diseased tube or ovary from the peritoneal cavity. As the acute stage subsides the lymph contracts, bands of adhesion draw and distort the organs, and the folded, twisted, and adherent broad ligament holds the uterus in its backward displacement. As a rule, the peritoneal tissue covering the fundus is not adherent to the tissues behind the uterus, although this seems to be the case when an examination *per vaginam* is made. The uterus may sink lower, being drawn down by contraction of the adhesions, and the fundus may become retroflexed, or the cervix with the vaginal junction be lifted upward and forward when the adhesions are extensive and the contraction great. The Fallopian tube being small, especially the uterine end, and displaced, the lumen is stopped, the discharge accumulates, distends, and leaks into the peritoneal cavity, a fresh attack of peritonitis sets in, more lymph is exuded, and as the acute stage subsides the tubes and broad ligaments are rolled back and folded in more and more; as the contraction goes on, the tissues harden and the tubes may form strong cords, which, being adherent to the floor of the pelvis, fix the uterus in its retroflexed and retroverted position; thus we have cases of retroversion with adhesion, and it is the rolled up ligaments and tubes which fix the uterus backward; and it is the embedded ovary and diseased tube in the tissues of the broad ligament which make it next to impossible to insert a pessary and hold the uterus up without causing pain and running the risk of bursting or tearing a tube distended

with septic or irritating fluid. By the expenditure of much patience and time we can, in many cases, stretch the ligaments, and by force get the fundus uteri into that ideal normal position, but to keep it there is the rub; the rolled-up broad ligaments will not unroll, and when put on the stretch by the uterus being held up by force, they soon begin to ache, inflame, and may cause local peritonitis.

Now suppose only one tube is affected, the retroversion will be less, and if the other side is not affected the uterus may be even a little anteverted, unless the inflamed tube drops to the floor of the pelvis. If the ovary and the tube of the affected side are prolapsed and inflamed, as contraction takes place the broad ligament is shortened, especially on its lower side, and unless the tube and ovary are very much distended, so as to displace the uterus bodily, the cervix is drawn to the affected side, the fundus being tipped toward the healthy or less affected side, which is usually the right side, and the swollen ovary and tube may be forced backward somewhat behind the uterus. Thus we have characteristic cases of lateral flexion produced. When only one side is affected, it is usually the left; the circulation on this side, from the formation of the veins and the proximity of the often-distended intestine to the left broad ligament, seems to make it more susceptible to congestion, prolapse, and disease than the right side. When both tubes are involved, the left is probably the first to become affected, this, together with the natural position of the uterus being that with the fundus inclining slightly to the right of the centre, accounts for the fact that where both tubes are affected and the uterus is not retroverted, the cervix is drawn to the left and the fundus to the right, the left ovary and tube being prolapsed, and the right usually much less prolapsed. In nulliparous women, especially in those cases where the uterus is anteverted or anteflexed, and where the disease is gradual in its progress, this condition of the right lateral flexion with the fundus forward is most likely to be found; whereas, after labor and abortion, salpingitis is frequently associated with more or less retroversion. Sometimes the prolapsed tube, especially in the left side, is adherent to the sigmoid flexure or to the small intestine, and the omentum may have slipped down, especially when the uterus is retroverted, and becomes adherent over and in front of all the pelvic organs, when it has been thickened and the blood-vessels greatly enlarged by repeated attacks of local peritonitis or general peritonitis. To the inexperienced it is a formidable barrier; years ago I saw even Dr. Sims close the abdomen rather than run the risk of going through it to reach the ovaries beneath it. These are the cases where eminent men will tell you that they opened the abdomen, but could not find or reach the ovaries and tubes, and therefore closed it. When describing the operation, I think I can make it plain that by a simple procedure this apron of bloodvessels can be safely removed. It has enabled me to complete the operation of removal in even the worst cases. Where the local peritonitis is limited, as the tubes open near the ovaries which protrude through the posterior surface, the adhesions are, as a rule, confined to the posterior layer of the broad ligament; this accounts for the rarity with which the bladder is affected by the adhesions. The ureters are not uncommonly affected by the adhesions, especially when the adhesions are low on the floor of the pelvis, and in tearing up very old and firm adhesions, the ureter may be lifted up; on one occasion it would have been tied had I not recognized it as it was lifted up by the operator.

I have here the histories of twelve cases operated upon since Oct. 5, 1885. From these I will select two characteristic cases of pyosalpinx and read the histories and show the specimens, and I will also read the history and show the specimen from a case upon which I lost the opportunity to operate. The other specimens are twelve that I have selected from those obtained from the thirty-seven women that will best illustrate genuine cases of pyosalpinx, and hydrosalpinx, and degeneration of the ovaries.

CASE I. *Pyosalpinx complicated by an abscess.*—M. A., German, aged twenty-two, married, admitted Oct. 30th. Has had one child and one miscarriage, last pregnancy being about seven months ago. Menstruation began at fifteen, and was always normal up to last time. Then there was an interval of only ten days and she flowed again for nearly two weeks. About two weeks after last confinement she had pain in her back and left inguinal region, which has been growing worse. It is intermittent and at times very severe. After her admission to the hospital she had several rises of temperature to 103½°, preceded by chills and accompanied by vomiting, tympanites, and pain and tenderness in lower part of abdomen. Examination showed to right of uterus a firm, rounded mass, at first about the size of a crab-apple, but which within two weeks steadily grew to the size of an orange and was fixed in the broad ligament. To the left was a similar but smaller mass. This patient had been coming to my clinic, at the N. Y. Polyclinic for several months, and the case had been diagnosticated as one of chronic salpingitis, and was sent to the hospital after acute symptoms of local peritonitis had begun and the increase in the size of the cyst, in the right side, detected. Nov. 12th, median abdominal incision, somewhat larger than usual, was made. The tumor in the right broad ligament was found strongly adherent to uterus, intestines, omentum, and pelvic wall posteriorly. The adhesions were separated with difficuly, and the ovary and tube lifted up. In securing the pedicle the sac was ruptured and a few drops of pus escaped, but it was caught by sponges, and probably none entered the peritoneal cavity. About three ounces of pus were drawn off with an aspirator and then the pedicle was ligated and the tumor cut off. The ligated end was seared with the actual cautery and returned to the abdomen. The left ovary was enlarged and somewhat adherent, and the left tube was in the condition of pyosalpinx, the walls being infiltrated and œdematous. This œdematous condition extended to the cellular tissue and caused the pedicles and broad ligaments to be much thicker than usual. This is the condition called cellulitis, which usually precedes the extension of a pelvic abscess, etc. The

tubes were now deligated and cut off, the stump being treated as on the other side. The abdominal cavity was then washed out with warm bichloride solution 1 : 10,000 and then with warm water which had been boiled. The abdominal wound was then closed, Tait's straight glass drainage tube being inserted into the peritoneal cavity. Temperature rose steadily, until twenty-four hours after the operation it was 103⅓° per vagina. The wound was then dressed and the drainage tube cleaned out with a solution of carbolic acid 1 : 100. Temperature then fell and remained between 101° and 102° per vagina, till the third day when, as there was but little discharge from the glass tube, it was removed and a rubber drainage tube inserted. After this the temperature rose rapidly to 103⅓°, and this rise was accompanied by considerable vomiting. After twelve hours, however, it began to fall and reached normal on the sixth day, after which it did not rise again. Wound united by first intention except where drainage tube had been. On Dec. 7th, vaginal examination showed some thickening of peri-uterine tissues, but the uterus itself was freely movable, and the patient was free from pain. She was discharged on Dec. 10th, cured.

CASE II. *Pyosalpinx converted into pelvic abscess.*—Mrs. P., nativity U. S., aged thirty-nine, married, last pregnant eleven years ago, has had three children, no miscarriages. Jan. 20th, she gave this history. Was healthy and well until some time after last pregnancy, then suffered from displacement, etc. Six years ago I sewed up her cervix and perineum, and later fitted a pessary, to correct retroversion. Since then she has worn a pessary, and up to the time of last menstruation, about two weeks ago, she felt well, had no pain and considered herself in good health. The flow was very slight, and since then she has had a steady aching pain, chiefly in her left side, over the inguinal region and down the leg. This has gradually increased, and although she has felt sick and weak, she has kept up and about. She has had chilly sensations, but is not certain about having had fever. On physical examination, a distinct cystic mass can be felt to the left of the uterus, pressing down in the pelvis, below the level of the cervix uteri; the mass is in the broad ligament and is about the size of a small lemon. Right broad ligament is thickened, and uterus fixed nearly in its normal position.

I saw her a few days later and found that the cystic tumor on the left was larger; diagnosticated cystic ovary and salpingitis, and decided to aspirate with a fine needle through the vagina, to determine the nature of the cyst, and I thought I could define a similar cyst in the right broad ligament. Three days later, Jan. 28th, she had a troublesome diarrhœa and I prepared for aspirating, and also to do laparotomy if I thought best, while she was under ether. After washing out the vagina with a solution of bichloride of mercury, in Sims's position, I inserted an ordinary hypodermatic needle into the tumor, a little behind and to the left of the cervix, and drew out pus. With patient on her back, by vaginal examination, I found two distinct tumors, but that on the right side was well up in the pelvis and could not safely be reached through the vagina. I diagnosticated pyosalpinx and ovaritis complicated by abscesses. I could have very easily opened and drained the left cyst by the vagina, but on account of the right side being inaccessible from the vagina, I decided it was my duty to remove both by laparotomy, and at once proceeded to do so. The abdomen was opened in the median line—the opening in the peritoneum being made large enough to enable me to use freely two fingers, in separating the adhesions. The omentum was adherent over the fundus and both cysts; this was removed and the cyst on the right was exposed; it reached above the brim of the pelvis and it was carefully enucleated from its bed of adhesions, and by enlarging the abdominal opening it was lifted out, and consisted of the right tube distended into the shape of a cornucopia, with the ovary the size of a large lemon, fixed in by adhesion and filling the large end. The ovary was really a bag of pus, that seemed to communicate with the fluid in the distended tube. With an aspirator three ounces of pus were drawn off. This was done to prevent the sac bursting and its contents escaping into the peritoneum, while it was being tied off. After the aspirator needle was withdrawn, the opening made by it was closed with pressure-forceps, the pedicle was tied with a Staffordshire knot and the cyst cut off. One side of the ligature did not tighten or cut through the tissues, and it was necessary to catch up the broad ligament and tie it again. The stump was seared with a thermo-cautery and put back into the peritoneal cavity. The left broad ligament was carefully loosened from the posterior edge of the brim of the pelvis, where it was turned back and held firm by adhesions. The tube was found distended with its end filled up with a cyst as large as an orange. In separating the adhesions of this cyst from the floor of the pelvis, it was found firmly adherent to the rectum near the sigmoid flexure—the cyst burst and several ounces of pus escaped. The sac was quickly unrolled from behind and underneath, the broad ligament lifted out and tied, and treated as that on the right had been. Then the peritoneal cavity was washed out (irrigated) with a gallon of 1 to 10,000 solution of bichloride of mercury, and this was followed by water that had been boiled. Then the abdomen was carefully sponged out, a glass drainage tube introduced, and the wound closed around it with silk sutures and sprinkled with iodoform. A cotton dressing was applied, which was strapped on so as to make even, elastic pressure over the whole abdomen. The time of operating was fully one hour and a half, and there were no symptoms of shock. One sixth of a grain of morphine was given hyperdermatically every six or eight hours, and only drachm doses of hot water allowed to be taken for the first thirty-six hours. At that time her pulse was 115, axillary temperature 101.4°. There was no vomiting and no tympanites; and now on the seventh day, her pulse is 84, temperature 99°, and she is in good condition, taking a glass of Kumyss every two or three hours.

CASE III. *Pyosalpinx, followed by abscess and finally general peritonitis and death.*—M. C. T., aged thirty-two, married Dec. 23, 1885, was admitted to my ward at Bellevue with temperature of 104.4°, and other positive symptoms of extensive pelvic peritoni-

tis. My house-surgeon made a vaginal examination and found a thickened mass in the left broad ligament, and the uterus firmly fixed. She said she had had one child eight years ago, but had never been pregnant since. Until a few months ago she had menstruated every three weeks, and since then the flow had been irregular, sometimes lasting two weeks. For some time past she has had a pain in the left side of the abdomen. Two days before admission she had a chill and the pain became much worse. The next day she vomited a thin greenish fluid. She also said that within the past two or three years she had had a similar attack of inflammation several times, but never so severe as this one. I saw her twenty hours after admission. She had a rapid but good pulse, and the temperature had fallen from 104.4° to 102.6°. There was some slight tympanites, but the tenderness was confined to the pelvis, and her general condition was very good. I diagnosticated local peritonitis, due to salpingitis, and told the assistant house-surgeon, who was then on duty, to watch her closely, and to send for me if any signs of extension of the peritonitis showed themselves, telling him that if the peritonitis became general or dangerous to life that I would operate at once. For twenty-four hours her condition remained about the same, and then unmistakable signs of extension of the peritonitis showed themselves, but from a misunderstanding on the part of the assistant, I was not sent for until fourteen hours later, when temperature was 105.6°, and pulse 150, and patient completely insensible. Thus I missed the chance to operate. This specimen shows a dilated tube and adherent ovary forming the sack of an abscess of ten or twelve ounces, which burst or ulcerated through the adhesions into the peritoneum, causing death by general peritonitis. I should have operated when I first saw her, but thought the acute attack of pelvic peritonitis would subside as it had done before, and that I would have an opportunity to do laparotomy under more favorable circumstances. If I had been notified even a few hours earlier her chances under an operation would have been nearly as good. I might have opened the abscess by the vagina, but had I put her under ether to do so, the sac would in all probability have ruptured into the peritoneal cavity while she was struggling during etherization, or when the trocar was inserted, and general peritonitis and death supervened, unless the rupture were recognized and laparotomy and washing out and drainage of peritoneum done at once.

CASES ILLUSTRATING THE TREATMENT OF CONTUSIONS OF THE LARGER ARTERIES.

BY H. R. WHARTON, M.D.,
INSTRUCTOR IN CLINICAL SURGERY IN THE UNIVERSITY OF PENNSYLVANIA; SURGEON TO THE CHILDREN'S HOSPITAL; ASSISTANT SURGEON TO THE UNIVERSITY HOSPITAL.

CASE I. *Lacerated wound of the thigh; contusion of femoral artery; ligation; secondary hemorrhage; gangrene, and death.*—Patrick C., aged thirty-five years, was admitted to the men's surgical ward of the University Hospital, under the care of Prof. Ashhurst, on July 18, 1884, with an injury which he had received in the following manner. He was one of a gang of laborers employed in building a railroad in the vicinity of Chester, Pa., and while asleep in a cabin a portion of a rock projected from a blast, came through the roof of the cabin and struck him in his right groin, producing a lacerated wound which bled freely at the time. Upon examination, a few hours after the accident, on his admission to the hospital, the patient showed no marked constitutional symptoms of excessive loss of blood; the right limb was pale, and its temperature was lower than that of the left; further examination revealed the fact that pulsation was absent in the popliteal, anterior, and posterior tibial arteries of the injured member. Upon the upper portion of the right thigh, there was a lacerated wound about four inches in length, a short distance below Poupart's ligament and running parallel with it. The edges of this wound were widely undermined; and upon everting them, a very extensive dissection of the anatomical structures of the part was presented. The inner edge of the external wound extended to a point just short of the line of the femoral artery, and upon exploring this further with the finger, the artery could be felt as a firm, fibrous cord, without pulsation.

The patient was etherized, and Prof. Ashhurst divided the undermined skin at the inner edge of the wound and exposed the femoral artery, which was filled with a firm thrombus for several inches; pulsation was plainly seen in the vessel for about an inch below Poupart's ligament. The hemorrhage, which was said to have been free before he was brought to the hospital, seemed to have arisen from the external circumflex artery, which was found lacerated; the internal circumflex artery, the corresponding veins, and the femoral vein, seemed to be uninjured.

Taking into consideration the contused condition of the vessels, Prof. Ashhurst deemed it advisable to ligate the femoral artery in healthy tissue, and accordingly placed a ligature around the proximal portion, just below Poupart's ligament, and applied his distal ligature to the vessel just below the lower limit of the contained thrombus – it being necessary to separate the sheath of the vessel for some distance to expose this point. The ligatures were then secured and the femoral artery was divided at a point midway between them; the vessel was found filled with a quite firm blood-clot; the wound was then cleansed, a drainage tube inserted, the edges brought together by a few interrupted sutures, and a light dressing applied. The limb was enveloped in cotton wadding and the external temperature was maintained by the application of hot water cans.

July 19.—The patient reacted well from the ether; the temperature of the right limb has slightly improved, and the color has become better.

25th.—Doing well; temperature of right leg good; pulsation can now be detected in the popliteal artery and in the posterior tibial artery at the ankle; the external wound looks well.

26th.—The patient had a slight hemorrhage from the wound, which was controlled by pressure; the wound was opened and both ligatures were found in position; it was noticed at this time that a considerable amount of sloughing in the vicinity of the femoral vessels had taken place.

As no further bleeding took place at this time, and as the source of the hemorrhage could not be discovered, the wound was packed with lint and a shot-bag was applied.

On the following day a profuse hemorrhage occurred from the wound, the packing was removed, and Prof. Ashhurst tied the distal end of the femoral artery, from which the ligature had separated, as the bleeding came from this direction. This diminished the bleeding somewhat, but it was found also that free venous hemorrhage still continued, which was only controlled when the femoral vein was ligated. The wound was then closed, and measures taken to keep up the temperature of the limb, and the patient was stimulated freely, as he showed marked constitutional symptoms, resulting from the loss of blood. The patient reacted slowly; on the succeeding day gangrene appeared in the affected limb, and rapidly spread upward to the abdomen, and he finally succumbed about thirty-six hours after the last operation.

Contusions of arteries are a class of injuries which have a peculiar interest to the surgeon, for they not only present an immediate danger, but are also followed by remote consequences which may lead to the most serious results. There is no doubt that contused arteries sometimes recover themselves, and afterward perform their function satisfactorily; whether this will occur or not, is, of course, directly dependent upon the amount of interference with their nutrition resulting from the traumatism. An artery which has sustained a severe contusion may, as the result of that injury, have its inner coat lacerated, and as a direct result of this a thrombus may form at the seat of injury; or, should this laceration not be sufficient to establish an occluding thrombus, the vessel may, at a later period, have its calibre still further diminished by the cicatricial contraction following the inflammatory action consequent upon the traumatism.

This latter explanation is not accepted by some authorities, who think the secondary occlusion is due to a slowly forming thrombus or an embolus, arrested at the roughened or narrowed part of the injured vessel, rather than to the result of inflammatory action.

There is, also, in cases of severe contusion, a possibility that the vessel, the vitality of which has been impaired by the injury, may, in a short time, rupture or slough, giving rise to hemorrhage or a consecutive or traumatic aneurism.

Mr. Bryant[1] reports a case which illustrates the first of these conditions. A laborer, aged thirty-five years, was admitted to Guy's Hospital, May 20, 1880, in a condition of collapse, having been run over by a loaded coal-van. He presented on the left thigh, just below Poupart's ligament, a soft semi-elastic swelling, without pulsation, and also a small wound just below the anterior superior spinous process of the ilium; no pulsation could be detected in the femoral or distal arteries; the external iliac artery pulsated down to Poupart's ligament; the limb was cold, but its sensation was good.

[1] Lancet, July 16, 1881.

Three days after admission the temperature of the affected limb was normal, but it was more than three weeks before pulsation could be felt in the popliteal, anterior and posterior tibial arteries; and when the patient was discharged a short time afterward, the femoral artery could be felt in Scarpa's triangle, as a firm, fibrous cord, without pulsation. This case represents a most favorable termination of a case of this kind, and one in which the collateral circulation was able to carry on the work imposed upon it, and thus was avoided the immediate danger of gangrene; a factor of safety, also, in this case, which should not be overlooked, was the probable escape of the femoral vein from injury.

Of the class of cases in which we have severe contusion of the vessel followed by marked inflammatory changes, the termination is not so favorable. Of these cases I have seen several examples, and can recall one, which, I think, bears directly upon this point.

CASE II. *Contusion of the brachial artery; spreading gangrene, beginning on the eleventh day; amputation; recovery.*—A. R., aged twenty-five years, a brakeman, was admitted to the University Hospital, under the care of Prof. Ashhurst, in August, 1882, suffering from a severe contusion of the right elbow from being rolled between the buffers in coupling cars. At the time of his admission to the hospital, the arm below the seat of injury was cold and no pulsation could be detected in the radial or ulnar arteries. The limb was placed upon a pillow and warm water dressings were applied continuously for twenty-four hours, and it was then found that the temperature of the part had improved; and in a few days pulsation had returned in the arteries at the wrist. At the end of ten days the patient was allowed to leave his bed and walk about the ward.

Early in the morning of the eleventh day, the patient complained of great pain in the hand and forearm, and upon examining the part, the hand was found swollen and deeply congested, and a large bleb had formed upon its dorsal surface; the forearm became greatly swollen and in spite of free incisions the gangrene rapidly spread, and by evening had reached a point as high as the upper third of the arm. In the meantime, the patient also showed marked symptoms of exhaustion, had become delirious, and was rapidly losing ground.

When I saw the case for Prof. Ashhurst, the same evening, as he had expressed himself in favor of amputation if the gangrene were still spreading, I considered it justifiable to give the patient the chances which amputation offered, so I accordingly amputated the arm through the tuberosities of the humerus, and the patient made a good recovery.

Upon examination of the limb after removal, the brachial artery and vein were found matted together by a mass of lymph, the vein containing a recent clot, and the calibre of both vessels at the seat of injury, being practically obliterated by the results of inflammatory action in and around their coats.

In this case, I have little doubt that the obstruction of the vein was the immediate cause of the development and spread of the gangrene.

Of that unfortunate class of cases in which the

injury to the vessel has been sufficient to give rise to sloughing of its coats, which may be followed by secondary hemorrhage, or by the occurrence of traumatic or consecutive aneurism, we have many examples, particularly in the records of military surgery, where this accident, following gunshot contusions of the arteries, is frequently seen.

As regards the treatment of contusions of the arteries, the indications are, generally, quite clear: in ordinary contusions, the injured part should be placed at rest, and the temperature of the parts below the seat of injury, if their blood supply be found deficient, should be maintained by the application of external heat, to favor as much as possible the rapid establishment of the collateral circulation.

Inflammatory lesions at the seat of injury can be treated by the application of evaporating lotions, and under this plan of treatment recovery may occur, with either complete or partial obliteration of the artery at the seat of injury, if the collateral circulation, both arterial and venous, is satisfactorily established.

If a traumatic or consecutive aneurism form, either ligature of the vessel above and below the seat of the arterial lesion, or amputation, will be required.

Gangrene coming on primarily or secondarily, if it involves the limb only, will require amputation. Whether this operation should be performed at once, or whether we should wait for the formation of the line of demarcation and separation, will depend upon the rapidity of its spread and the constitutional condition of the patient.

The first case reported in this paper presents some unusual complications, the treatment of which is not generally laid down; in this case, the contused artery containing a thrombus was exposed to view in the lacerated wound, and without the application of ligatures secondary hemorrhage would seem almost to have been invited, while the satisfactory establishment of the collateral circulation showed that the occlusion of the artery itself was not attended with risk of gangrene, which condition evidently resulted from secondary venous implication.

MEDICAL PROGRESS.

TREATMENT OF VULVAR PRURITUS IN DIABETICS.—As a palliative local application in this annoying complication, BLANCHET, of Vichy, recommends the use of the following salve:

Oxide of zinc,	
Glycerole of starch . . .	āā 25 parts.
Salicylic acid	1 part.

Prolonged local tepid baths are also of service in acute cases; the prime indication of rational treatment, however, being the diminution of the polyuria.—*Rev. de Thérap.*, March 1, 1886.

EXPERIMENTAL PRODUCTION OF PSORIASIS.—LASSAR has removed, with a clean metal instrument, scales from the efflorescences of a psoriatic patient, mixed them with the lymph and blood which exude after this treatment, and rubbed the same on the greased cutaneous surface of a rabbit. At the region of such application the hair fell out, the skin became dark red and markedly infiltrated, and bled when but slightly scratched. Scales taken from such a rabbit produce, when transplanted to another animal, precisely similar lesions. Lassar refrains, for the present, from asserting that human psoriasis may be transmitted to animals, but states that the symptoms produced as above described present a very striking resemblance to psoriasis in man.—*Centralb. f. d. med. Wiss.*, Jan. 30, 1886.

INFLUENCE OF CHLORAL ON DIGESTION.—From an article in the *Archives Ital. de Biologie*, vi. 3, p. 412, we learn that PROFESSORS FIUMI and FAVRAT had the opportunity, in a man suffering from a gastric fistula and insomnia, to study the effect of chloral on digestion. Finely cut up albumen was sewed up in tiny bags, and from twenty to forty grains of chloral were administered daily in divided doses, one an hour before digestion began, another during the meal, and a third two hours later. All scientific precautions to insure a correct result were employed.

The observations extended over a period of nineteen days. Hydrate of chloral, administered in from twenty to forty grain doses before or at the beginning of a meal, retarded digestion by increasing the secretion of mucus from the stomach, and thus thickening the gastric juice. This effect increases with the height of the dose, and it is specially strong if the remedy be taken while fasting. The acidity of the juice also diminishes, but before an hour is over it has returned to its normal. The secretion of pepsin is not interfered with, either as regards quantity or quality, so that the disturbance can be ascribed only to two factors: increase of mucus by irritation, and diminution of acidity. If the remedy be administered two hours after a meal, provided the dose is not more than forty grains, no effect whatever is observed concerning any influence of the drug on gastric digestion.

The authors, besides, demonstrate the fact that chloral is absorbed but slowly by the gastric mucous membrane, for one or even two hours after its introduction most of the dose was still contained unaltered in the stomach. This explains partly the fact, that its administration by the rectum is followed by a quicker and prompter effect than when given by the stomach.—*Medical and Surgical Reporter*, Jan. 30, 1886.

INTERMITTENT FEVER OF TWELVE MONTHS' DURATION: CURE BY SUBCUTANEOUS INJECTION OF CARBOLIC ACID.—Incited by the results obtained by Dieulafoy, NARICH has used the carbolic acid treatment in the case of a woman who had suffered from intermittent fever for one year, and in whom quinine, alone and in combination with potassic bromide, effected no beneficial result. The solution used was of the following formula:

Crystallized carbolic acid . . .	gr. vj.
Water	f ʒxiij.

In seven days there were, in all, thirty-three injections administered, beginning with two daily and increasing to six, according to the tolerance. At the end of this course the fever disappeared, and has not recurred during the nine months which have since elapsed.

Jessier, Déclat, Hüter, Hirschberg, Aufrecht, Motta, and others, have also employed carbolic acid in the same disease, both by the mouth and hypodermatically; Motta, indeed, preferring it to quinine.—*Centralb. f. d. ges. Therapie*, March, 1886.

HYSTERO-CATALEPSY IN THE MALE.—DR. MCLANE HAMILTON reports an interesting case of this kind in which the paroxysms followed the sudden suspension of large habitual doses of opium (as high as sixteen grains per day) and were caused to cease by firm testicular pressure. Coincident with the pressure, all rigidity relaxed, and consciousness returned.

No cremasteric reflex could be evoked. The case is interesting because of the rarity of hystero-catalepsy in the male, the sudden abandonment of the morphine habit, and the success of the novel therapeutic experiment resorted to. The patient was rather fat, a married man, aged thirty-five years, intellectual, and of good capacity, whose father was an irascible man, given to excessive stimulation. Mother transmitted to him no neuropathic taint.—*St. Louis Medical Review*, March 13, 1886.

SPLENIC BRUIT IN INTERMITTENT FEVER.—In nine cases of intermittent fever MAISSURIANZ observed in the protuberant spleen an intermittent blowing murmur, probably of vascular origin similar to that observed in Basedow's disease. In one case, after large doses of quinine, the murmur disappeared in three days. In another the sound became more pronounced with the access of fever, and was coincident with increased splenic sensitiveness. In chronic, hard, swollen spleens the sound was never heard. In the only case in which post-mortem examination was obtained, the spleen was very soft and rich in blood.—*Fortschritte d. Medicin*, March 1, 1886.

COMMUNICATION OF TUBERCULOSIS THROUGH THE FOOD.—FISCHER has made a series of experiments on this subject on rabbits, with the result that he comes to the conclusion that such a method of the conveyance of the tuberculous poison is beyond all doubt. His experiments were made with beaten-up fresh lungs of rabbits which had died of tuberculosis, and later on with such lungs after putrefaction had commenced in them. From his first series the results showed that after the animals had partaken only once of this material (3–8 c.cm.) a typical tuberculosis of the intestinal mucous membrane, of the mesenteric glands, and liver was developed within a period varying from 6–8⅓ weeks. The spleen, omentum, kidneys, pleura, and peritoneum were, on the contrary, never found affected, the part chiefly involved being the intestinal mucous membrane, the extent of this depending on the duration of the experiment and the richness of the tuberculous material in bacilli.

Falk had previously shown that the digestive juices, contrary in this respect to their action on the anthrax bacilli, have little or no effect on the tubercle bacilli, neither killing them nor even weakening them, and Fischer has arrived at a similar conclusion. On the other hand, putrefaction has a most distinct effect on the tuberculous poison; on feeding the animals with putrefactive tuberculous material, either no changes at all were found, or they were slight and limited for the most part to the mesenteric glands and vermiform process, and as the number of bacilli in such material was in no way diminished, the difference in the action could only be ascribed to a weakening of the pathogenic activity of the organisms, brought about by prolonged contact with putrefactive organic substances.—*The Practitioner*, March, 1886.

PATHOLOGICAL HISTOLOGY OF THE SEMILUNAR AND CERVICAL GANGLIA.—MR. HALE WHITE, from an examination of one hundred and fifty sections of these ganglia concludes:

1. The typical ganglionic nerve cell is similar to other nerve cells.
2. It is rounder and larger than those of the anterior horns.
3. Many cells have no processes, nucleus, nor nucleolus.
4. They are generally, but not always, wasted in patients who have died of wasting diseases.
5. Pigmentary degeneration is almost universal in the sympathetic ganglia, and may be the cause of some of our undefined and undefinable ailments of little magnitude.
6. Ganglionic pigmentation has as yet no definite significance.
7. Pigmentation of nerve fibres is never found.
8. The quantity of fibrous tissue varied in different specimens and parts of specimens.
9. The superior cervical ganglion is better supplied with bloodvessels than the semilunar, and the vascular arrangement is more constant in the former.
10. In chronic Bright's disease the ganglionic arterioles are thickened.
11. In acute inflammation of the ganglia great numbers of escaped white corpuscles and increase of connective tissue obscure the section.
12. Ganglionic congestion has been found in diabetes and purpura hemorrhagica, and is the only constant pathological lesion.—*Trans. Royal Med.-Chirurg. Soc.*, 1885.

A NOVEL ANTICOAGULANT.—PROF. ZUNZ has presented before the Berlin Physiological Society an ingenious method of retarding the coagulation of blood in the course of experiments upon blood-pressure. It had been shown that the cause of the frequent persistent bleeding seen after the application of leeches, is due to the presence of a soluble ferment in the animal. Zunz has found that an aqueous extract of the heads of leeches, injected into the blood stream, not only prevented any interruption of the experiment through coagulation, but in no wise influenced blood-pressure.—*Allg. Wien. med. Zeit.*, Feb. 16, 1886.

ANTISYPHILITIC FUMIGATIONS.—LANGLEBERT recommends the following formula as especially useful in secondary laryngeal syphilis:

Pulverized wood charcoal . . .	℥vjss.
Protiodide of mercury	gr. xxx.
Benzoin	gr. xv.

Mix with slightly sweetened water to a paste, and divide into twenty pastilles.—*Rev. de Thérapeutique*, March 1, 1886.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will be liberally paid for upon publication. When necessary to elucidate the text, illustrations will be furnished without cost to the author. Editor's Address, No. 1004 Walnut St., Philadelphia.

SUBSCRIPTION PRICE, INCLUDING POSTAGE,

PER ANNUM, IN ADVANCE, ... $5.00.
SINGLE COPIES, ... 10 CENTS.

Subscriptions may begin at any date. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made, at the risk of the publishers, by forwarding in *registered* letters.

Address, LEA BROTHERS & CO.,
NOS. 706 & 708 SANSOM STREET,
PHILADELPHIA.

SATURDAY, MARCH 27, 1886.

THE OPERATIVE TREATMENT OF FRACTURE OF THE PATELLA.

THE operative measures proposed for the treatment of fracture of the patella are three: puncture of the capsule of the joint to evacuate the effusion; the tendon-ligature of Volkmann; and suture of the bone. Or they are four, if the use of Malgaigne's hooks be considered an operation, and five, if the method proposed by Morton be employed. It is not long since there was no question as to the proper way in which a fracture of this sort should be treated, and all surgeons used simple external appliances to keep the fragments as nearly in apposition as possible, and were satisfied with obtaining a useful limb. But in 1877 Lister, with the confidence resulting from his experience with the antiseptic method, opened the knee and sewed together the fragments of a recently fractured patella, obtaining firm union and a useful leg. Since then others have followed his example in such numbers that it may be said that this method is one well established, and deserving of serious consideration in deciding upon the treatment most suitable for this kind of injury. Certain enthusiastic surgeons have even argued that this method is the best for general adoption, and would think no more of recommending it to their patients than they would of advising any other simple and successful procedure. On the other hand, conservative surgeons may be said almost wholly to reject it, and to restrict its application to cases which resist simpler methods, or to cases of fractures already communicating with the air.

It seems as if it were not too soon to pronounce a judgment between these two opposite opinions; for there are now accessible a large number of reported cases from the results of which the merits or demerits of this method may be gathered with some degree of certainty. Recently, DR. JOSEF BOGDANIK, of Biala, has published the report of a case of his own, and accompanied it with a study of this question, "Naht der gebrochenen Kniescheibe" (*Wiener med. Presse*, Dec. 20 and 27, 1885); and DR. CONRAD BRUNNER, of Zurich, has published a long and elaborate comparison of the simple and operative methods "Ueber Behandlung und Endresultate der Querbrüche der Patella" (*Deutsche Zeitschrift für Chirurgie*, Bd. xxiii. Hefte 1 and 2). The latter paper contains a detailed account of the history of forty-four cases of simple and complicated fracture treated without suture, and statistical tables containing the essential points in regard to ninety cases of fracture treated by the suture, half of them being recent and half old fractures. The paper of Bogdanik contains a table including sixty cases treated by suture. Striking out the duplications in both these papers, we may obtain sixty-four apparently authentic cases on which to found an opinion as to the claims of the operation. Looking over them all, and studying carefully the details of the cases reported by Brunner, treated by the simple method, and followed up for long periods of time, so that the final result could be fairly stated—a thing which is as yet entirely lacking in the history of the operative method—we are led to the conviction that the operation of cutting down upon a fracture of the patella and suturing the fragments is entirely unjustifiable in the great majority of cases. As Brunner points out, there is no real necessity for the operative method, since the simple method gives practically as good results. The true test of the success of either method is the restoration of the function of the leg, and not the securing of bony union. If this be applied, it is found that the great majority of cases of fracture of the patella treated in the old way do very well. It cannot be asserted, and much less can it be proved as yet, that the results of operative interference are any better. Thus far, there seems to be little difference between the merits of the two. But when we consider the dangers attached to them, we find that they are absent in the simple method of treatment, while they are very considerable in the operative method. Thus, in the cases cited we find eight of suppuration of the joint, two in which amputation through the thigh became necessary, nine in which ankylosis took place, and three which ended fatally. With this may be compared the results of the forty-three cases collated by Chauvel, in which severe inflammation of the joint occurred twenty times, secondary amputation was performed once, and death occurred three times.

In view of these facts, we believe that there is no justification for transforming a simple fracture of the

patella into a compound one, in the hope of securing bony union, which does not insure any better functional results than is secured by good ligamentous union, or for the pleasure of saving a certain part of the time usually required for the treatment in the old way.

As the case now stands, we think the operation of suturing the fragments of a broken patella should be reserved for cases in which there is already a free communication with the seat of fracture, and for such badly united fractures and such useless limbs as are plainly beyond relief by simpler methods. Certainly the sentiment of American surgeons, founded upon a large and fortunate experience in the treatment of fracture of the patella, does not incline them to follow the enthusiastic devotees of Listerism, in regarding opening the knee-joint as suitable to many cases of this injury.

"UNCONSCIOUS IMPREGNATION."

UNDER the above title one of our contemporaries gives an account of a case recently tried in Manchester. A dentist was charged with having committed a rape upon one of his patients, an unmarried girl, while she was under the influence of nitrous oxide. It is stated that "two questions arise in connection with the case of the highest import. Is it possible for intercourse with a virgin to take place during the short period of insensibility and semiconsciousness following the administration of nitrous oxide gas? We take it that, although possible, it is in the highest degree improbable. But there can be no doubt that, granted the accomplishment of the act, the answer to the query, Can unconscious impregnation happen under such conditions? must be answered in the affirmative." So much for the journalist's statements.

Now we venture to say that impregnation is always unconscious, for the interval between insemination and conception, the latter is a synonym for impregnation, is an unknown period—it may be hours, or even days, and "it cometh not with observation." No one claims to know the actual duration of pregnancy in the human female, simply because the first term is an unknown quantity—an uncertain time; we know when the pregnancy ends—though in regard to this law and physiology may assert a difference, the former saying that the end is with the birth of the child, while the latter might, in consequence of essential changes in conditions, find this ending in the beginning of labor—but we do not know, and probably never will know, the precise time when it begins, when the spermatozoid and ovule actually unite to form the new being, and thus accomplish impregnation. Necessarily the female is unconscious of the time when this union occurs; if she were, obstetricians would know how long human pregnancy lasts.

Passing by, then, this misapplication of the words unconscious impregnation, let us turn for a moment to the question intended to be presented as to coition occurring without a woman being conscious of it. The subject is briefly considered by Vibert in the thirty-ninth volume of the *Nouveau Dictionnaire de Médecine et de Chirurgie Pratiques*, which has just been issued. Vibert states that this violation can be accomplished upon a girl or a woman in a state of nervous sleep, of catalepsy, of lethargy, of induced or spontaneous somnambulism. He asserts that the statement is placed beyond all question from what we know in regard to the total or partial insensibility which is one of the manifestations of these pathological states, and by the docility which is shown by certain persons toward those who have made them sleep. He quotes a case where a dentist had intercourse with a girl twenty years old, who came to his rooms for professional treatment with her mother; the girl declared that she lost her consciousness each time, and upon coming to herself she felt pains in her genital organs without knowing what had occurred; a pregnancy resulted. The medical inquest proved that no chloroform or other anæsthetic had been used, but that the complainant presented various hysterical manifestations, and that it was easy to make her sleep by simply closing her eyelids. A similar case is quoted in Tardieu's work, where a mesmerizer had intercourse with a girl of eighteen; she was unconscious of what happened during her sleep. Although in each case a conviction occurred, the guilt of the dentist does not seem quite clear, as the crime was always committed while the mother was in the room, and it seems in the highest degree improbable that she would not know it.

Vibert, in accordance with other authorities in medical jurisprudence, admits that in a woman having had frequent sexual intercourse, coition may occur when she is in natural sleep without her being wakened at first, but that this is impossible in the virgin. The former statement can only be very exceptionally true, and the sleep must be quite profound.

Drunkenness, the effect of various narcotic medicines, anæsthetics, such as ether, chloroform, nitrous oxide, may "also permit a rape, the victim being incapable of defending herself, or not having any consciousness of the act committed upon her." But if the subject has been drunk at the time of the alleged crime, or if a narcotic has been given to the degree of abolishing will and consciousness, she remains for some time afterward unconscious. Founding his opinion upon the experiments of Dolbeau, who proved that it was almost impossible to administer chloroform by surprise to a person in natural sleep, Vibert states that it is only when the anæsthetic has been administered by a physician, or other competent person, that a rape could be committed.

Another question that is discussed is, whether a girl may be so overcome by terror, for example, or other emotion, that she can make no outcry, and is powerless to resist the ravisher? He suggests as facilitating decision in a given case, an inquiry as to whether the alleged victim is liable in her ordinary state of health to attacks of syncope, or loss of consciousness, and as to whether the details given by her of the violence and the sensations she experienced, are not inconsistent with a loss of consciousness, and an inability to resist. Now we think injustice may result from this view. Imagine—imagination is hardly necessary, for almost every week our newspapers tell us of such crimes—a frail, delicate girl or woman seized by some brutal man insane with lust, and having ten times her strength; it may be on a lonely road, in the dusk of the evening, and far from human help. She may be speechless and paralyzed with great and sudden fear, and yet conscious of every step in the horrid crime.

While, then, we believe it is an error to raise the question of unconscious impregnation, since the act of impregnation is never made known to the consciousness, it certainly must be admitted that the insemination which has caused the pregnancy may occur in quite exceptional conditions without the female knowing it. A familiar passage in King Lear indicates that both male and female may be only semi-conscious during fruitful intercourse, and that the products of such intercourse take a special character from such conditions.

". . . . . take
More composition and fierce quality
Than doth, within a dull, stale, tired bed,
Go to the anatomy of a whole tribe of fops,
Got 'tween asleep and wake!"

THE TREATMENT OF ANEURISM BY THE INTRODUCTION OF FILIFORM MATERIAL.

In The Medical News for December 12, 1885, we called attention to the subject of aneurisms of the aorta, and incidentally to the treatment of aneurisms by the introduction of foreign substances. The occasion of this article was a case of aneurism of the abdominal aorta treated by Loreta, in 1884, by the introduction of about two yards of silvered copper wire, after opening the abdomen. A new instance of the introduction of wire for the treatment of aneurism has just occurred in London. On February 23, Dr. Cayley reported to the Royal Medical and Chirurgical Society (*British Medical Journal*, Feb. 27, 1886) the case of a man forty-eight years old, with an aneurism of the ascending part of the arch of the aorta. After unsuccessful medicinal treatment, on June 24, 1885, Mr. Hulke introduced into the sac, through a fine canula, forty feet of steel wire, which had been previously coiled on a mandril half an inch in diameter. This was followed by no untoward symptoms, and the upper portion of the aneurism was completely consolidated. About two months later, there were signs of the extension of the aneurism within the thorax, and on September 10th, Mr. Gould passed a canula down behind the sternum into the aneurism and introduced thirty-four feet nine inches of wire. This caused no constitutional disturbance, but it afforded no relief of the symptoms of aneurism, and the patient died in ten days. At the autopsy it was found that the upper part of the aneurism was completely filled with clot, in which the wire was embedded. The lower portion was not affected by the treatment. In the discussion which followed the report of this case Mr. Barwell spoke of this as the ninth reported case of the introduction of wire, horsehair, or catgut, none of the patients having been definitely cured. The general opinion seemed to be that such a measure must be regarded as a last resort. Mr. Holmes expressed an opinion similar to that which we expressed in our editorial of last year, in favor of the employment of a less rigid material than wire; instancing catgut and horsehair, of which he thought the latter the better.

The result of the case reported by Dr. Cayley, we think, justifies the hope that something may yet be accomplished in the treatment of aneurisms which resist medicinal treatment, and which are not amenable to compression or ligation. Such cases certainly ought not to be left to die unrelieved, and by a judicious following up of the indications already accumulated the best method and best material for the obliteration of the cavity of the sac will doubtless be discovered. For the present, it seems to us that it would be well to repeat the use of horsehair, which—contrary to the apprehensions of Loreta and to the assertion of Mr. Hulke—*can* be made absolutely aseptic.

THE MISNAMED PORRO OPERATION AFTER RUPTURED UTERUS.

We have a very decided objection to calling an operation by the name of *Porro* in which a Cæsarean section does not precede the utero-ovarian amputation, and in which there is no possibility of saving the fœtus. As Dr. Oscar Prevôt, of Moscow, first performed this special ablation of the uterus, on November 22, 1878, it is proper that it should bear his name, for two reasons, viz.: It is far more fatal than the true Porro method, the results thus far being one woman saved out of eight, and eight children lost, and it only serves to increase the mortality of the Porro list when the two records are combined.

We cannot see that this method of treating cases of uterine rupture can be of any advantage, in view of the fact that laparotomy after uterine laceration has been less fatal in the United States and many parts of Europe than the old Cæsarean operation—

in fact, in our own country, saving nearly one-half of the women. Besides, we are not ready to unsex a woman who has been so unfortunate as to rupture her uterus, when she can be better cured without, and especially when she has a normal pelvis and may bear children without future risk if her uterus be well closed by sutures.

DR. SLAWJANSKY, of St. Petersburg, reports in the *Annales de Gynecologie*, for February, 1886, the case of a woman thirty-seven years old, and pregnant for the ninth time. When within a week of her full term her uterus was lacerated transversely by an accident, and the fœtus escaped into the abdominal cavity. The rent was from side to side in the superior third, and through it the viscus was inverted with the placenta attached, as in the Miller case reported in the *American Journal of the Medical Sciences*, for July, 1885, p. 181. We cannot see that this condition necessitated the removal of the uterus, which was done in this case, for the restoration of the parts in Dr. Miller's case enabled him to deliver the placenta without hemorrhage, the mouths of the vessels being completely shut up by the contraction which followed upon the organ being replaced. The fact that Dr. Slawjansky's patient escaped death does not justify the method, for many more than one out of eight have been saved under Winckel, Hœbecke and others in Europe, without the unsexing process. If anything would justify the Prevôt operation it would be the existence of pelvic deformity, as found in the four Winckel cases, three of which recovered. As six out of nine women were saved after laceration of the pregnant uterus by the horn of an ox, we cannot see the necessity for the extreme measure advocated by Dr. Slawjansky. Better by far is it to rely upon closing the uterus by sutures, cleansing out the abdomen, and antiseptic treatment.

SOCIETY PROCEEDINGS.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, February 3, 1886.

THE PRESIDENT, S. WEIR MITCHELL, M.D., IN THE CHAIR.

DR. CHARLES W. DULLES read a paper on

THE MECHANISM OF INDIRECT FRACTURES OF THE SKULL.

He began with a historical review of the subject of fractures of the skull and traced the references to indirect fractures down from the time of Hippocrates to the present day. Considerable space was devoted to studying the observations, experiments, and theories of the French investigators of the last century—Grima, Saucerotte, Sabourant and Chopart, and Corning, down to this century, the views of Sir Charles Bell and Mr. (afterward Sir) Benjamin Brodie were given. Aran's experiments and conclusions were presented and commented upon, as well as the theories of Hilton, von Bruns, Prescott Hewett, Chauvel, Schwartz, and Félizet, and others, among whom the most prominent names were those of Bergmann, Messerer, von Wahl, and Greder.

The speaker then considered in detail the elastic properties of the skull, and explained the mechanism by which, in a hollow case, the shape of which has a general resemblance to that of a spheroid or ellipsoid, a compressing force is converted into a disruptive force. When an elastic spheroid is compressed in any diameter, all the diameters lying at right angles to this—that is, in any plane parallel to that of the equator—must be elongated. The experiment of pressing on the convex side of a bow, the ends of which rest on the ground, will illustrate what takes place in every chord of every arc that is depressed. It is equally clear that the elongation of the diameters lying in any plane will elongate the circumference of this plane, because a circumference of longer radius is longer than a circumference of shorter radius. As a result, the meridians passing from pole to pole will be separated in a direct ratio to the extension of the different diameters and circumferences. This operation is illustrated whenever an umbrella is raised. As a consequence of the separation of the meridians, particles which before occupied a certain space between two meridians, will be compelled to separate in order to occupy the increased space between them. In every such case there will be a struggle between the cohesion of the particles and the disruptive force due to the separation of the meridians, and whenever the disruptive force overpowers the cohesion of the particles lying along and between two of the meridians, a solution of continuity will take place. The disruptive force will be at a maximum at the equator, but it will be found in different proportions in every line parallel to the equator. In a perfect sphere with homogeneous walls such a solution of continuity would naturally begin at the geometrical equator and extend equally and simultaneously in opposite directions in a meridional line toward the poles; but in a spheroid or ellipsoid not regular in shape, and with walls varying in strength in different parts, the result would be modified by these variations. This is exactly what we find in the case of the skull, which, while bearing a certain resemblance to an ellipsoid, does so in only a modified way, and can only be expected to exemplify the law just stated subject to modifications due to its own peculiarities.

He next spoke of the anatomical peculiarities of the skull, and, after mentioning the thinnest portions of the different bones comprising it, he pointed out some peculiarities in the temporal bones, the importance of which he had not found sufficiently dwelt upon. He spoke of the thinness over the cotyloid depression, and of the fact that the mastoid portion is sometimes occupied by such large open spaces as materially to weaken its walls. The petrous portion does not, on section, present everywhere that solid and rocky appearance to which it owes its name, and which it only partly deserves. The roof of the external auditory meatus is sometimes very thin, in a line parallel to and anterior to the superior ridge of the bone. The floor of this canal is also comparatively thin. The plate of vitreous which covers the anterior inclined plane of the bone is

often a mere shell over the promontory above the inferior semicircular canal, and further back, in front of the groove for the superior petrosal sinus, it overlies a mass of honeycombed cancellated tissue which communicates with the large cells of the mastoid process. These facts explain the many fractures which are found to run parallel to the crest of this bone, and which have often been wondered at. In like manner, the curious course which a fracture sometimes takes at right angles to the main axis of the petrous bone may be understood when we study the channels and excavations belonging to the middle and internal ear, the internal auditory meatus, the carotid canal, the groove for the inferior petrosal sinus, and the jugular foramen.

Again, in regard to the posterior clinoid processes, it was long a matter unexplained that violence done to the skull was followed by no fracture, except one breaking off the posterior clinoid processes of the sphenoid bone. But the explanation is easy enough if we accept the "bursting theory," and recognize the fact that the tentorium cerebelli is attached in front to these processes, and that, when the long diameter of the skull is increased, the tense tentorium holds back with an unyielding strain, and tears these processes from their attachments to the rest of the bone. In this we have both an explanation of the mechanism of these fractures and a confirmation of the "bursting theory" of indirect fractures of the skull.

Attention was called to the peculiar conditions of the basi-sphenoid and petrous bones. These bones are never united by bony union or close-fitting dentations, like the other bones of the skull. Their adjacent surfaces are simply applied against each other and united by a membranous or ligamentous band. The plane in which these bones articulate is such that the basi-sphenoid is placed like a wedge between the apices of the two petrous bones. As a consequence, any force, like a blow on the vertex driving the cranium down upon the spinal column, or a fall upon the buttocks or feet, driving the spinal column up against the cranium, will have the effect of forcing the wedge-shaped basi-sphenoid upward and forward between the two rigid petrous bones, with the frequent result of knocking off one or both of the apices of the latter. This form of fracture is another which has excited much surprise and some fanciful explanations; but, in the light of what has just been stated, it seemed to him to be quite comprehensible.

Finally, the speaker said he had been struck by the fact that certain peculiar fractures of the base of the skull seem to have been due to support of a segment of the occipital bone furnished by the inclination upward and outward of the articular surfaces of the atlas, which embrace the condyles of the occipital bone and restrain it from rupture to such an extent that a fissure will pass on both sides of the protected region rather than through it. This form of fracture he illustrated by a beautiful specimen taken from the Mütter Museum of the College of Physicians.

The speaker next discussed the architectonic peculiarities of the skull, and the influence of the soft parts and contents upon fractures.

As to the contents of the skull, he said that Fabricius ab Aquapendente attributed fractures by counterstroke to the effort of the air, which he supposed the skull to contain, to escape from its cavity, and called attention to the fact that the skull is filled with a much more incompressible material than air. In fact, the brain and its membranes, with the surrounding fluid, completely fill the skull with one of the most incompressible materials of which we have any knowledge. Under the influence of a blow, this material tends to increase the disruptive force, according to the well-known laws of hydrostatics. The statements often made, which affirm or imply that the skull and its contents can be compared to a water-bed, are utterly erroneous. The fluid contained in the cranium, in a state of health, is far too little to justify any such comparison. Besides which, it is contained in a firm, unyielding case; while it is indispensable to a water-bed that its walls shall be soft and yielding. It has also been intimated—and so able a man as Mr. Hilton thought he had demonstrated—that displacement of the cerebro-spinal fluid could be regarded as a protective against injury when the skull was struck. Mr. Hilton's experiment was not free from an important source of error, and one who studies carefully the anatomical peculiarities of the cerebro-spinal axis must see, I think, that there is only one way for compensatory diminution in the contents of the skull to take place, namely, by displacement of its contained blood through its natural channels. This displacement can and does take place when time is afforded for the process, as in the case of a growing tumor; but the rapidity with which a blow tends to diminish the capacity of the cranium far outstrips the speed with which the blood can escape; so that, as a matter of fact, the skull and its contents may be regarded as the very opposite of a water-bed, and more like a cask filled with fluid which may burst under a sudden increase of the pressure upon the inside of its walls. This fact is established not only by a correct knowledge of the physical conditions of the cerebro-spinal axis, but also by experiment and observation.

The next division of the subject was a study of 119 cases of fracture, the details of which the speaker thought sufficient to justify their use in testing the correctness of the bursting theory. Drawings were shown of each one of these cases, and one in which the lines of 100 fractures had been placed upon a single diagram. This diagram showed that the parts which Félizet assumed to have peculiar strength—the petrous bones and the basilar portions of the occipital—seem, on the contrary, to be the very seats of election for fractures of the base.

The analysis of these 119 cases showed that 111 present fissures which correspond to what might be expected from an application of the principles of the "bursting theory," and only eight seem to contradict it—a result which seems to establish this theory by the best test which we can apply to it, so that it appears to rest upon a firm tripod of reasoning, experiment, and clinical observation.

The speaker did not overlook the fact that there are fractures which cannot be accounted for by the bursting theory. He spoke particularly of some in which the force applied is so great, and acts in such a manner, that the skull is crushed so as to hide any evidence of the play of its elastic properties, the fracture being of a comminuted sort; and of others in which one segment of the skull seems to be shoved over the other by forces

of pressure and counter-pressure which require some study before their mode of operation can be understood. In this connection he spoke of the importance of learning the position which the skull held in relation to the spinal column, or to any body exerting counter-pressure, and of the counter-pressure which is caused by the simple *vis inertiæ* of the skull and its contents.

He closed by expressing the conviction that the supreme law governing the production of indirect fractures, is that which depends upon the fact that the skull is practically a hollow elastic case, approximately oval in shape, and which may be briefly formulated as follows: When a sufficient force is applied to any curvilinear part of the skull, if this part do not give way immediately, the axis of the skull lying in the same line as that of the applied force is shortened; all the axes lying in planes at right angles to this line are correspondingly lengthened, with a proportional lengthening of their circumferences, and separation of their meridians; so that the direct depressing force is converted into an indirect disruptive force acting at right angles to the direction of the former. The effect is to produce a fissure, or fissures, which will have a general meridional direction.

The application of this law is subject to certain modifications due to the anatomical and architectonic peculiarities of the skull, its coverings and contents, and to certain exceptions due to the amount and velocity of the force applied as well as to the coming into play of peculiar counter-forces.

DR. AGNEW could not agree with Dr. Dulles as to the mode of fracture; the elasticity of the skull is too insignificant. He still held to the old vibratory theory. He satisfied himself of the correctness of this by experimenting with ivory balls, suspended in such a manner as to touch different parts of the skull, and watching the effect on these balls when the cranium was struck. Fracture of the skull, in the vast majority of instances —when the force is concentrated on a very limited surface—occurs at the point of impact. The force which gives rise to fractures at the base is usually a diffused one, and if applied at the vault of the skull travels to the base by the shortest route, the vibrations concentrating or focusing on certain fossæ in nearest relation with the seat of the applied violence.

DR. PACKARD thought that there were two points not mentioned by Dr. Dulles which could hardly be left out of the account in considering the subject of these fractures. One is the direction of the bony fibres—the intimate structure of the bones, as distinct from their mere shape. The other is the momentum of the fracturing force. Some ten years ago he reported a case in which a man was struck by a locomotive moving at such a speed that he was carried along in front of it for a distance of forty feet before he was flung over to the other track, receiving, among other instantly fatal injuries, a fracture which completely separated his skull into two portions, an anterior and a posterior. Between such terrific violence as this and the blows or falls which are the usual causes of fracture of the skull, there are, of course, innumerable gradations, with corresponding influences on the lesions produced.

DR. DULLES said that it would not be possible to prepare a paper of the kind which he had presented in such a way as to meet in advance all the objections which might be raised in regard to it; neither would it be possible in the time devoted to discussion to answer all such objections. He would only say briefly that all that is claimed for the "bursting theory" is, that it seems to account for a very large number of indirect fractures. Experience alone can determine the reliability of any theory, and, while he had become convinced of the correctness of this one, time will decide the matter.

In answer to an objection raised by Dr. Formad, he said that it was not really an objection, but rather supports the "bursting theory." The fractures passing horizontally, of which he spoke, are just as much meridional as though they passed vertically. He showed on a skull how any line passing round the surface in the shortest direction from pole to pole—that is, from the point of impact to the antipodal point, is meridional, and the line passing horizontally is as much meridional as any.

In regard to a case about which Dr. Formad had asked a question, he said that he could not recall a single instance of the many he had investigated, in which a stellate fracture was not a direct fracture; and he believed such an appearance to be an indication that the fracture was caused by violence applied at that very spot. This violence, of course, might be due to a blow on the point where the fracture appears, or to a fall in which the head struck some resisting body at this point.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, March 8, 1886.

THE VICE-PRESIDENT, LEWIS A. STIMSON, M.D., IN THE CHAIR.

NECROSIS OF SHAFT AND EPIPHYSES OF TIBIA CURED BY CUTANEOUS IMPLANTATION ACCORDING TO NEUBER.

DR. A. G. GERSTER presented a boy, ten years of age, who came under his care as a patient at the Mount Sinai Hospital six months ago, with total necrosis of the shaft of the tibia, for which an operation was performed by making a longitudinal incision and chiselling off the top of the involucrum to such an extent as to permit him to remove in one piece almost the entire shaft of the bone. At the same time, it was found that there were several disseminated necrotic foci in the head of the tibia and lower epiphyses, which were removed principally by the gouge. In the operation, the posterior gutter-shaped involucrum broke into six or seven small fragments, and therefore the implantation of the edges of the skin incision could not be done as usual by nailing them to the bottom of the wound. He was, therefore, obliged to introduce four sutures through the edges of the incision, and then thrust the needle through the entire thickness of the leg and tie the loops on the posterior aspect of the leg. The groove formed by the inturned edges of the skin was very deep at that time, but the newly formed shaft of the tibia has raised the cicatrix so that now it is almost level with the normal outline of the limb. Although the new formation and the healing of the fractures went on without disturbance, it was noticed that in the upper and lower angles of the incision, where drainage tubes had been placed, there was a continuous secretion, so that five or six weeks after the operation revision of the upper and lower ends of the bone was performed, and then it was ascertained

that the cavities formed at the first operation, particularly at the head of the tibia, did not fill up with newly formed bone, but that the walls of the cavity produced deciduous granulations which, from time to time, went on to ulceration. Three or four revisions of the lower end of the bone were made, and finally resulted in occlusion of the cavity situated in the lower epiphysis. The upper epiphysis, however, remained rebellious about five and a half months, and two weeks ago Dr. Gerster made a tongue-shaped flap, the base of which was below the patella, corresponding to the spine of the head of the tibia, and reflected that, together with the periosteum and the insertion of the patellar ligament, exposed the capsule of the joint in order to be sure not to open it in chiselling off the roof of the cavity. Then the roof of the cavity was chiselled away more or less of its sclerosed walls, until, finally, bone was reached which bled freely, and he then turned in the flap which he had formerly raised and nailed it to the remnant of the posterior shell of the head of the tibia. An antiseptic dressing was applied, which was changed for the first time three days ago, when it was found that the flap had attached itself nicely to the bottom of the wound. The lower portions of the wound, which could not receive a cutaneous covering, were healing by granulation, and it was fair to expect that a large part of them would be ultimately covered by skin.

The object of this operation was to compel healing of the deepest portion of the cavity where retention of secretion always took place. He expects in this way to conclude the case satisfactorily.

In making an operation so near the knee-joint, it is most essential to expose the capsule of the joint first, and when this can be distinctly seen, the danger of opening into the joint can be safely avoided.

PES PLANO-VALGUS CURED BY RESECTION OF A WEDGE-SHAPED PORTION OF THE TARSUS; CONSECUTIVE PARALYSIS OF MUSCULO-SPIRAL NERVE DUE TO THE USE OF CRUTCHES; DISSECTION OF THE NERVE, FOUND TO BE ADHERENT TO AN OLD CALLUS FROM COMMINUTED FRACTURE OF THE HUMERUS.

DR. GERSTER also presented a young man, an oyster opener by occupation, who was obliged to do his work while standing. He entered the Mount Sinai Hospital with marked plano-valgus, walking upon the inner edge of the foot. The head of the astragalus was protruded to such an extent that the skin over it became frequently irritated, and threatened ulceration. The outer edge of the foot looked almost directly upward. In this case he removed a wedge-shaped piece of bone, containing a portion of the calcaneum, astragalus, and scaphoid, and then the edges of this wedge-shaped defect were united by three or four catgut sutures, and a suitable dressing fixed the surfaces of the bones in contact. To keep the bony surfaces in contact was rather difficult, but it was accomplished by the use of an apparatus similar to that which had been recommended some time ago by Dr. Detmold, the principle being that a board was attached to the sole of the foot, and to this, at right angles, a second board, which acts as a lever, and is brought up and tied to the leg in such a way that the sole of the foot is inverted, and the result was very satisfactory.

This case presented another interesting aspect. During convalescence the patient first attempted to walk, distinct paralysis of the muscles presided over by the musculo-spiral nerve was noticed, which increased from day to day. Dr. Gerster was then informed by the patient that he had formerly sustained a compound fracture of the humerus. On examination it could be seen that the outline of the humerus was very irregular and very much thickened, and that there were a number of ridge-shaped prominences which indicated that the fracture was very extensive and probably comminuted. The result with regard to the fracture itself was very good, but the musculo-spiral nerve in the cure had become attached to the callus, and when the patient commenced to make his first attempt at walking by the aid of crutches after the operation on his foot, the ulnar and median nerves yielded to the stretching by the pressure of the crutch, but the musculo-spiral, being attached along the posterior aspect of the limb, could not so yield and thereby was subjected to a great amount of continuous irritation, resulting in this evidently traumatic paralysis. The paralysis grew more and more intense, although walking upon crutches was stopped. This complication induced him to cut down upon the nerve and remove the portion of callus which compressed it and which he found to be a shallow gutter of newly formed bone, and at the same time he found that the portion of nerve about two inches in length embedded in the gutter was hyperæmic and thickened, so that when it was lifted out it was distinctly though slightly spindle-shaped. The wound healed by first intention, and under proper electrical treatment, using first galvanism and then faradism, which preserved the size of the muscles tolerably well, the function of the nerve had recommenced and continued to improve daily, so much so that the patient is now able to extend the wrist as well as the fingers. Although cases like this had finally improved and got well without operative treatment, he had no doubt that the operation in this case hastened the improvement in the symptoms, principally by improving the circulation in the affected parts.

The deformity of the foot dated back to childhood, but the patient had noticed that since he was obliged to earn his living by doing work while standing, the inflammatory part of the trouble became prominent, and with it the extreme deformity.

FLAP TRANSPLANTATION ACCORDING TO MAAS, OF WURZBURG, FOR CIRCULAR ULCER AND CICATRIX OF LEG.

DR. GERSTER presented another patient, a boy of eight years, upon whom he had performed transplantation according to the plan of Mass, of Würzburg, a plan which he should deem practicable in a number of cases. The child had sustained a compound fracture of the leg about one year ago, and also at the same time a laceration of the cheek which resulted in necrosis of a portion of the angle of the mouth, and finally shortening of the mouth, especially of the angle. He found when the patient was admitted to the hospital that there was an extensive loss of integument corresponding to the lower third of the leg, the lesion being circular in outline; that the anterior portion of this surface was marked by an ill-conditioned ulcer, which grew larger and smaller according to the variation of external influences. Finally the patient was admitted to the hospital, and he had no doubt that the ulcer would not heal; in case it should do so by granulation, the

contraction caused by a circular cicatrix of great width would interfere with circulation to such an extent as to endanger the integrity of the foot. He then performed an operation by taking a flap from the posterior aspect of the other leg, four inches long and two inches wide, with its base upward, which was left adherent. Before beginning the operation each leg was embedded in a plaster-of-Paris bandage. The left leg was embedded in plaster of Paris only after dissection of the flap up to its base, the flap remaining outside above the dressing which was carried over the limb. The two legs with their plaster-of-Paris splints were then brought into suitable apposition, so that the posterior flap could be placed upon the defect on the opposite leg, and in this position both legs were secured with an additional arrangement of plaster of Paris enclosing all, and then the child was put to bed and allowed considerable freedom so far as this apparatus would permit him, because it was quite sure that no disturbance of the flap could occur. Dampened sponges were placed in the vicinity of the flap, and the region of the flap was invested in several layers of rubber tissue which was removed once or twice a day, but there was no dressing proper applied to the wound. About one and a half inches of the end of the flap necrosed, but the rest becoming adherent, the cicatrix was covered, and Dr. Gerster believed that now the danger from cicatricial constriction had been removed. A fortnight after the first operation, the pedicle being cut, the plaster-of-Paris bandages were removed.

The ulcer was prepared for the flap by cutting away the granulations, and the edge of the flap was not in contact with the edge of the ulcer.

DR. SANDS remarked, concerning Dr. Gerster's case, that a slighter operation on the foot would probably not have been of avail. He had performed Ogston's operation, which consists in removing the articular surfaces of the scaphoid and astragalus, placing these surfaces together in the natural position, and securing them by means of two ivory pegs. In this way he had been able to restore the arch of the foot; union by first intention occurred, and the patient was in much better condition than before the operation.

DR. MCBURNEY asked, with regard to the constricting cicatrix, whether Dr. Gerster thought the flap would prevent the effects of this constriction, as it seemed to him that there still remained a rather tight cicatricial surface.

DR. GERSTER said that the constriction which was observed when the patient was admitted to the hospital was a great deal more pronounced than it is at the present time, especially on the posterior aspect of the limb. The boy was unable to walk with as much comfort as now; the constriction has decidedly diminished. Whether this is due to the fact that the cicatrix has softened, or whether the improvement is due to increased nutrition of the dependent parts of the leg, he was unable to say. He would also add that the flap which has been transplanted can be used for further operative purposes, and can be divided into one, two, or three parts, meeting further indications if there is any special disturbance in the direction referred to.

DR. LANGE asked whether it is probable that the circular constriction from the cicatrix will endanger the nutrition of the limb. He did not know where there exists any observation that the presence of a superficial circular cicatrix has interfered dangerously with the nutrition of the foot.

DR. GERSTER said that when he was a student, in 1868, he saw in the clinic of Dumreicher the case of an old woman—a radical difference, of course, in the patients—who had a very extensive circular ulcer, apparently an ulceration of the cicatrix, which was situated in about the same region as in this case. In that patient, however, there was also arterial stenosis, and gangrene of the foot supervened. He would not say that the gangrene was caused by the presence of the cicatrix alone, as it is well known that gangrene occurs in the limbs of old people without the presence of a circular cicatrix, but the circular cicatrix being present in a patient with defective arterial supply, of course will increase the chances of the occurrence of gangrene. He did not believe that in a case of this kind necrosis of the foot will result, but the disturbance of function due to malnutrition will certainly be very pronounced.

DR. BRIDDON had had one experience, in a child of about the same age as this boy, who was very severely burned, and the ulcer remained open for about eighteen months. The entire integument of the forearm except that immediately below the elbow-joint was destroyed, but at this point there was a tongue of tissue left which, in the formation of a cicatrix, was drawn down, so that it reached to within an inch and a half of the wrist, and the circular constriction of the cicatrix was such as functionally to derange entirely the wrist and fingers. The condition of the hand was that of constant œdema and lessened vitality, and he had proposed an operation somewhat similar to that performed by Dr. Gerster, namely, the transplantation of a flap from the anterior wall of the thorax. So far as he was able to follow the case, the functional disablement was pretty nearly complete, and probably an operation of this character would have restored the limb to its usefulness.

DR. GERSTER believed that undoubtedly if the end of the flap had not necrosed it would have covered one side of the tendo-Achillis at least, which would have been of very great advantage.

ORBITAL ANEURISM.

DR. MCBURNEY presented a young man who illustrated the not very common affection of orbital aneurism, and who gave the history that about one year ago there was nothing noticeable about the eye except a very small swelling which did not give him any special inconvenience. Last spring he received a very severe blow from a base-ball, and from that time the swelling has increased, and recently he had a fall and struck in this region, and he thinks that it increased more rapidly since that accident.

There is a general pulsating tumor involving the tissues about the eye, especially the upper lid and brow. The larger vessels can be felt pulsating distinctly. A careful compression of the carotid artery cuts off all pulsation. The retinal vessels, as well as the external, were convoluted and also pulsating. Vision was apparently normal. A distinct bruit could be heard over the mass. There was also a distinct protrusion of the eyeball.

DR. SANDS thought it very difficult to say, without further investigation, what the exact nature of the difficulty was in Dr. McBurney's case. The patient gave evi-

dence of the development of a tumor from the inner aspect of the orbit, but at the same time he gives the history of an injury, and exhibits an arterio-venous murmur. It is unusual to find true aneurismal tumors in the orbit. He once treated such a case by ligating the common carotid artery, and subsequently either Dr. Agnew or Dr. Knapp removed the globe of the eye, and the patient was relieved but not cured. The next operation was that for removal of the aneurism from the orbit, which was accomplished by Dr. Knapp by cutting it out; there was no bleeding.

In Dr. McBurney's case, he would tie the right common carotid, and, inasmuch as pressure upon the right carotid removes pulsation, he would expect good results from that operation, as, indeed, has generally been observed.

DR. BRIDDON recalled a case of this character which was operated upon by Dr. Buck, and in which the common carotid was tied, but without benefit. The supra-orbital was then ligated, but without permanent relief. The pulsation then seemed to be in the angular artery, which was tied, and the pulsation ceased, and it did not return. Dr. Briddon has tied the common carotid in one case for a pulsating tumor similar to that seen in Dr. McBurney's case. In that instance, ligation of the artery produced no effect upon the size of the pulsating tumor. The woman died on the thirteenth day—was found dead in bed. Precisely what the condition was which preceded death, he was not able to say. Examination of the orbit after death detected absolutely nothing.

DR. GERSTER had heard Dr. Knapp relate the case referred to by Dr. Sands, but he had never heard a satisfactory explanation as to why bleeding does not follow the cutting of the pedicle of the tumor which contains a large vessel that is left open.

DR. SANDS said it was quite apparent that the large vessel had expanded into a sac, and that when this sac was opened, although the bleeding was exceedingly profuse, so much so that he thought the patient would bleed to death, the vessel retracted within the foramen and the hemorrhage ceased.

DR. GERSTER suggested that if the periosteum is used as a capsule or involucrum to the aneurismal tumor, and is peeled off from the bones forming the orbit, removal of such a tumor can be effected pretty easily, provided the periosteum and bones have not become involved in the aneurism.

DR. SANDS asked Dr. McBurney what operation he intended to perform.

DR. MCBURNEY said he intended to tie the carotid, and also some of the dilated vessels which pulsated so distinctly, his fear being that if they are not ligated some recurrent supply will take place which possibly might refill the tumor.

DR. GEORGE A. PETERS recollected Dr. Buck's case, referred to by Briddon, in which ligature of the carotid artery did not cure; and, finally, cure was effected by ligating the angular artery. What the subsequent history of the case was, he did not know.

DR. LANGE said the impression given on palpation was that the tumor in Dr. McBurney's case was a mass of cavernous tissue, and the question arose whether it was to be regarded as an aneurism or pulsating cavernous tumor.

DR. SANDS said that he tied the carotid artery several years ago in the case of a tumor resembling this somewhat, although it was more plainly recognized as being a pulsating sarcoma. Of course a permanent cure was not effected, although the patient was benefited by the operation.

DR. A. G. GERSTER then read a paper on

SPONTANEOUS PHLEBACTERIEKTASIA OF THE FOOT.

(See page 321.)

DR. SANDS asked Dr. Gerster whether in a similar case he would dare to resort to similar practice, as the double arterial operation can rarely be done without destroying the limb. The simultaneous, or the rapidly succeeding ligation of the superficial femoral and the iliac vessels suddenly compels the circulation to take place through two sets of collaterals; therefore, gangrene is likely to follow. Erichsen has stated that, under such circumstances, gangrene is inevitable; but that it does not invariably occur, Dr. Sands had learned from a case in Bellevue Hospital, in which Dr. Stephen Smith successively ligated several of the main arteries of the lower limb, and yet no bad results followed.

DR. GERSTER said that as a rule he should always prefer to amputute in such cases, and that he would not perform the operation which he performed in this case. In this instance deligation of the vessels was all there was left to be done, for the parents would not listen to amputation, yet some operative interference must be instituted to remove the danger from hemorrhage. He would prefer, under such circumstances, to amputate; but under exactly the same external circumstances he should perform the same operation again.

THE CHICAGO GYNECOLOGICAL SOCIETY.

Stated Meeting, February 19, 1886.

THE PRESIDENT, DANIEL T. NELSON, M.D., IN THE CHAIR.

DR. A. REEVES JACKSON read a paper on

LAPAROTOMY FOR PELVIC ABSCESS.

He stated that at the December meeting a discussion arose upon the subject of pelvic abscess and its treatment. It was based upon the report of a case by Dr. H. T. Byford, which had been treated by favoring discharge of the pus by way of the rectum, and the placing within the abscess cavity a portion of sulphate of copper to promote granulation. The discussion seemed unfinished, and was withal of so interesting a character, that he thought it well to reopen it by the relation of the following case. Whether the operation performed in the treatment of the case should be termed a laparotomy will depend upon what significance is attached to the term. Upon this point opinions will doubtless differ.

If we understand by the word laparotomy, the opening of the abdominal cavity in its largest sense, the term is here correctly used; but if, on the other hand, we mean the opening of the abdomen for the relief of *an encysted intraperitoneal abscess non-adherent to the abdominal wall*, the term would not be properly applicable, for here there was complete adhesion, and, possibly, in the course of time the abscess might have pointed and opened in that direction, although he does not believe that such result would have occurred. With-

out active interference he thinks the disease would have resulted in death from pyæmia in a very few days.

On March 9, 1885, he visited Anna N., in consultation with Dr. Louis Braun, of this city. She was twenty-four years old, had been married six years, and had one child eighteen months old. On February 1—five and a half weeks prior to his visit—she had miscarried, producing a fœtus four months old. A few days after that event, Dr. Braun found the patient suffering from symptoms of pelvic inflammation, which had since continued, with varying severity. The pelvic swelling, which he detected on examination, appeared to involve all the periuterine structures, but to a greater extent on the right side; during the past few days, however, it had seemed greater on the left side. From the onset of the attack the pulse had been rapid, and the temperature elevated—the former ranging from 110 to 130, and the latter being persistently over 102° F., reaching on one occasion 104° F. Pain had been severe, but controllable by morphia. The appetite had failed utterly and the stomach finally rejected all food. At the time of Dr. Jackson's visit, the patient was pale, extremely emaciated, and her visage showed marks of prolonged suffering.

On examination he found on the left side of and behind the uterus, a swelling as large as a medium-sized orange, with rather indistinct outlines. Its lower portion was in a plane with or somewhat below the *os uteri*, and on bimanual palpation its upper margin could be felt extending above the fundus, which was pushed strongly to the right. Both uterus and tumor were immovable. The latter had a slightly elastic feeling in some places, although he was unable to detect any certain fluctuation through the vagina, rectum, or hypogastrium. Through the posterior vaginal wall, at a point about an inch above the lower portion of the swelling, he fancied he received a sensation of bogginess, and this, taken in connection with the history of the case, gave him the belief that pus was present. Accordingly he thrust a curved trocar and canula into the swelling by way of the vagina to the depth of about two inches, with no other result than the emission of a few drops of blood. It was then concluded that the patient should have prolonged hot-water vaginal douches daily, rectal feeding, and appropriate anodyne and tonic medicines.

On April 18th—five weeks later—he saw the patient again, with Dr. Braun, who reported that after his former visit the symptoms had all become gradually ameliorated, the stomach resumed its functions, pain subsided, pulse and temperature became normal. No menstrual or other discharge had appeared. This improved condition had continued until two days before, when, without apparent cause, the patient had a chill, followed by rapid pulse, high temperature, pelvic pain, and irritability of the bladder. Under anæsthesia he examined the abdominal and pelvic organs. The pelvic swelling had undergone no marked change, except that it seemed to have increased in an upward direction, extending now to a point about an inch above the *symphysis pubis*. At this place he thought he detected obscure fluctuation. The swelling, as felt *per vaginam*, was hard at every accessible point. All operative measures were declined by the patient and her friends, and the treatment advised consisted in the administration of morphia and quinine, and peptonized milk for diet.

April 19.—The patient was much worse. The pelvic pain was controlled only by large doses of morphia given hypodermatically, and the stomach retained almost nothing. The pulse was 130, temperature 102° F. It was decided that laparotomy should be performed the following day.

20th.—The patient was etherized, and the bladder emptied by catheter. She was the thinnest person Dr. Johnson ever saw placed upon an operating table. Immediately before the taking of ether her pulse was 124, temperature 103° F. The hair of the pubis was shaven off, and the skin of the abdomen washed with soap and carbolized water. An incision three inches long, ending below at the upper portion of the *mons veneris*, was made in the middle line of the hypogastrium. Deepening the cut, he came upon the peritoneum which, however, could not be separated from the parts beneath. Proceeding inward through dense structures, the knife suddenly entered an abscess cavity, which at once gave exit to a stream of pus to the amount of two or three ounces. Passing his finger through the opening he found that the cavity extended downward, behind and to the left of the uterus, about three inches. The abscess walls proper could not be accurately defined. The inflammatory processes had matted together the upper part of the uterus, the left broad ligament, tube, and ovary. The cavity was washed out, and a rubber drainage tube passed to the lower end, the outer portion of the tube bein stitched to the edge of the wound at its lower extremity. The remainder of the wound was closed with sutures, and dressed in the usual manner. The night following the operation the patient slept fairly well without an opiate.

When he saw her the next day she had taken milk and lime-water with relish; her pulse was 108, and temperature $100\frac{2}{5}$° F. In brief, the relief of the symptoms was immediate, and the recovery uninterrupted. Pus continued to discharge for more than six weeks in constantly diminishing quantity. The tube was then removed. Menstruation appeared July 20th, and has been regular since. He examined the patient September 25th. The uterus was still in a position of right latero-version, but movable in a slight degree. The parts about the left broad ligament were thickened and somewhat tender. An irregularly shaped mass occupied Douglas's space, and extended upward and to the left. The patient had gained greatly in weight, was ruddy, and was doing her own housework.

In a letter dated December 29th, she states, "I have no pain, and feel better than I have for four or five years."

Dr. Jackson stated that Mr. Lawson Tait had performed thirty-two operations for pelvic abscess, in every one of which a cure has resulted.

DR. CHRISTIAN FENGER said that he would not call the operation a laparotomy at all, but simply an oncotomy. An abscess was opened, and the operation does not differ materially from the opening of a deep-seated abscess in any other region of the body—*e.g.*, in an extremity. As he understood the term laparotomy, and he was not aware that it was ever used otherwise, it means that section of the abdominal parietes is followed by an operation performed within the peritoneal cavity. If the wall of an abscess situated in an abdominal organ has become adherent to the visceral

surface of the abdominal parietes, the peritoneal cavity is of necessity obliterated to the extent to which adhesions have formed. An incision made over such adhesions does not open the peritoneal cavity, and consequently the operation cannot be spoken of as a laparotomy. In the paper which he published on "Laparotomy for Periuterine Abscess,"[1] it was distinctly stated that the only way by which it seemed possible to get at the abscess is by opening the peritoneal cavity; it is also mentioned that omentum and intestines were found between the walls of the abscess and the walls of the abdomen.

Concerning the etiology of pelvic abscess, he would like to call attention to the literature of the subject. Sänger,[1] whose statements regarding etiology he has found to be the most complete, says that one out of nine of all gynecological affections is of gonorrhœic character. He further says that fifty per centum of these are diseases of the uterine appendages; although, of course, any part of the genital tract may be primarily invaded. He finds that disease most often has its principal focus in the Fallopian tubes, where it begins and whence it spreads. He distinguishes six kinds of salpingitis: (1) septic, puerperal and non-puerperal; (2) tuberculous; (3) syphilitic; (4) actinomycotic; (5) gonorrhœic; (6) a mixed form. The gonorrhœic is the most common form of the disease, and it produces the most severe cases of pelvic inflammation. It has not as yet been proven that the gonococci of Neisser can, of themselves, produce abscesses; but destruction of the surface of the mucous membrane is sufficient; an entrance is thus given to the septic pus microbes, the *staphylococcus aureus* and *albus* and the *streptococcus pyogenes*, which are probably always present.

The invasion having taken place, we must ask ourselves by what channel does the inflammation travel? Where should we expect finally to find an abscess in case one should form? The beautiful experiments of Bitas, König,[2] and Schlesinger[3] will be remembered; experiments which, about three years ago, he repeated in the dead-house of the Cook County Hospital, although the purpose he had in view at that time was a different one. These gentlemen injected, by means of fine canulæ, fluids, such as colored glue, into the periuterine tissues of puerperal and non-puerperal bodies. König found (*a*) that fluids, injected into the region around the *fundus uteri* and uterine portion of the Fallopian tubes, first pass upward into the iliac fossa to reach the crest of the ilium, then downward toward Poupart's ligament, and finally into the *pelvis minor* or true pelvis; (*b*) fluids injected into the periuterine tissues, in the neighborhood of the internal os, first fill the extraperitoneal connective tissue of the *pelvis minor*, then follow the round ligament as far as Poupart's ligament and ascend in a backward direction into the iliac fossa; (*c*) that when the injection is made near the lower portion of the posterior surface of the uterus, the fluid first flows into the *cul-de-sac* of Douglas and thence rises into the iliac fossa.

Schlesinger, although in the main agreeing with König, differs with him in the following two points: He says, (*a*) when fluid is injected into the neighborhood of the *fundus uteri*, it first passes into the iliac fossa, but thence it does not descend into the true pelvis, as König observed, but it ascends, running up the anterior abdominal wall; (*b*) from the broad ligament the fluid finds its way into the iliac fossa and thence upward toward the kidney, running in the mesentery of either the ascending or descending colon. Schlesinger further makes the interesting statement that his pericervical injections filled the pericervical tissues, but that they never produced a tumor which could be felt above the *symphysis pubis*.

So far as his experience went, the results of these experiments correspond well with the clinical facts. The puerperal abscesses which he has opened were situated, two over the crest of the ilium, one on Poupart's ligament, and one on the anterior abdominal wall, about three inches above the ligament.

As before mentioned, about three years ago, he made similar experiments; the fluid he employed was milk. His object, at the time, was to ascertain the exact relative position of such an artificial exudate, representing an abscess, with regard to the anterior wall of the abdomen, especially of an exudate in one of the broad ligaments. He wanted to see what difficulties he must be prepared to encounter in uniting the walls of a pelvic abscess, after having opened it, to the edges of the abdominal wound. As might have been expected, he found the difficulties of the operation to vary partly with the size of the exudate and partly with the degree of tension of the abdominal parietes. On the whole, the matter seemed simpler than he had *a priori* imagined.

Whether in cases of pelvic inflammations and abscesses laparotomy should be done or not, is a question of comparatively recent date, it being but little older than five years. The operation is always to be regarded as a last resort, and should never be thought of in cases in which the abscess can with safety be reached in any other way, which, of course, includes opening it through the rectum. Lawson Tait,[4] of Birmingham, and Martin, of Berlin, were the first who attempted to prevent the terrible contingencies of pelvic inflammations by attacking the disease at its original seat; Lawson Tait[5] removed the suppurating uterine appendages, Martin[5] operated for suppurating periuterine hæmatocele. Tait operated for a suppurating hæmatoma of the right Fallopian tube (peritonitis), in 1878, and he removed both tubes for pyosalpinx and an ovary for abscess, in 1885. In 1885 Martin[6] performed laparotomy in three cases of intraperitoneal hæmatoma—*i. e.*, retrouterine hæmatocele. He opened the peritoneal cavity, incised the sac, and evacuated the blood and pus; he then drained it to the vagina, through the pouch of Douglas, and closed the opening he had made into the sac from the peritoneal cavity by sutures. In the discussion following the reading of Martin's paper, Kaltenbach opposed Martin's operation, and pleaded for an extraperitoneal operation, reaching the abscess either from above Poupart's ligament, or, as Hegar recommended, from the ischio-rectal fossa. In 1880, Feldman,[7] of Göttingen, published an operation for double pyosalpinx. In 1882, Baumgärtner published a case of hæmatocele in which Martin's operation had been successfully performed. These more or less sporadic operations called the attention of the profession to the subject, and already during the following year, 1883, upward of fifty or sixty cases were reported, in which laparotomy was resorted to

[1] THE MEDICAL NEWS, May 9, 1885, p. 527.

for the cure of pelvic inflammations. Aside from the 46 cases which Lawson Tait published in his book, *Diseases of the Ovaries*, he reported 7[8][9] more. T. Gaillard Thomas[10] reported 5 cases; Zeiss,[11] Thornton,[12] Baer,[13] and Proschownick,[14] each 1. In 1884, America was represented by 15 cases: Stone,[15] 1; Lee,[16] 4; Lusk,[17] 1; Martin,[19] of Chicago, 1; Goodell,[20] 2; Jones,[21] 1; Thomas,[22] 1; Dawson,[23] 1; Polk,[24] 3. In England we have 35 cases: Tait,[25] 15, 7 of pelvic abscess; McDonald,[28] 2; Lediard,[29] 1; Chapman,[30] 1; Savage,[26] 9, 8 of pelvic peritonitis, and 1 of hæmatocele; Malin,[27] 7. In Germany 22 cases were reported: Martin,[31] 8 of suppurating hæmatocele; Gusserow,[32] 7, in 4 of which the sac was stitched to the abdominal wound; Sänger,[33] 5; Schröder,[34] 1; Quetsch[18] 1.

It is evident that the operation has rapidly gained ground, and that laparotomy has come to occupy a prominent place in the treatment of pelvic inflammations and abscesses. It may be objected that as yet the indications for the operation are not as clearly defined as we might wish them to be; in answer to this, we can only say that the operation is new, and that we must consider the importance of the subject the guaranty of process in the right direction.

He wished to add a few words about the subject, as it is modified, in cases in which the periuterine abscess communicates with the rectum or some other part of the intestines.

When a communication exists between an abscess and the intestinal tract, evacuation of the pus into the bowel is sometimes followed by spontaneous recovery. As a rule, however, such a condition is extremely dangerous, for the abscess cavity is constantly being infected with septic material from the intestine. Péan, in his *Diagnostique et Traitement des Tumeurs de l'abdomen et du Bassin*, t. ii. p. 155, writes that if a periuterine abscess opens into the intestine, bladder, or uterus, septic infection will not fail to produce its symptoms and may speedily prove fatal. This statement may be a little too broad. Schröder, in his *Krankheiten der Weiblichen Geschlechtsorgane*, Leipzig, 1880, says that when the abscess has broken into the gut or bladder we have to deal with a grave condition, as it is difficult or impossible to reach the abscess from the vagina. At that time, in 1880, he had not thought of the practicability of laparotomy in such cases. When the abscess has evacuated itself into the rectum, he considers it less difficult to get access to it, and he advises cutting through the posterior *cul-de-sac* of the vagina, and dissecting upward between the uterus and the rectum. Emmet[39] writes that when an abscess opens into the rectum, the case is very much complicated by septic infection through the feces. The quotations given are sufficient for us to conclude that, when there is communication between a periuterine abscess and the rectum, the patient is in great and constant danger of dying from septic infection, and that, therefore, an operation should be done, if possible, to provide free drainage of the abscess. Dr. W. H. Byford was opposed to the line of treatment suggested—*i.e.*, laparotomy; he thought that the sphincter ani should be dilated or incised, the communication between the abscess cavity and rectum should be dilated with the finger, a steel dilator, or the knife, the cavity of the abscess scraped, washed out, and drainage effected per rectum.

Aside from the old, now justly abandoned, puncture of a retrouterine abscess per rectum, Dr. Byford's method of attacking such an abscess is entirely new. He has nowhere met with a similar suggestion. If the abscess communicates with the intestine at a point beyond the rectum, a rectal operation is of course out of the question. If the opening into the rectum lies three inches or more above the anus, dilatation is hardly practicable. Such openings are often narrow and tortuous, the neighboring organs are immovable, and even if we divide the sphincter and the retrorectal tissues, we are obliged to work in the dark, for it is difficult or impossible to draw such an opening well down into view. Those who have extirpated a carcinoma of the rectum, will appreciate the difficulties of operating high up in the gut.

But, above all, he earnestly warned against adopting Dr. Byford's plan of employing in this region a knife for the purpose of dilating the opening of an abscess. Working here with a knife, the risk is always run of opening the peritoneal cavity and of dividing large vessels which are bound in the wall of the sac; as he once demonstrated in the walls of an abscess, situated in a broad ligament. The large uterine vessels may be found anywhere, and if wounded, it is next to impossible to ligature them securely.

In a relatively small number of cases the abscess breaks into the rectum near the anus; in these, dilatation may be tried, and it may even effect a cure, as we learn from Dr. H. T. Byford's case. However, we must hear of more than one case before we can judge of the value of this method of treatment. Being somewhat enthusiastic over his rectal method, Dr. Byford disposes of laparotomy by saying, "The treatment by abdominal section cannot for a moment be entertained, for at least two reasons," of which the first one is that it is necessarily followed by a recto-abdominal fistula, which is incapable of being promptly cured, and is apt to become a source of systemic infection. Of the numerous examples we have, he mentioned the perityphlitic abscesses to show that an intestino-abdominal fistula does not contraindicate the evacuation of the abscess. We operate to save life, whatever may become of the fistula afterward; besides, these fistulæ do frequently close. In the third case referred to, it closed in two months. The closure of a cœcal fistula is a common occurrence. The explanation is not far to seek. Whenever an abscess breaks into the gut, the condition of the abscess necessitates such an outlet for the pus. When the abscess is drained through a counter-opening in the abdominal wall or the vagina, and thus transformed into a fistula, the necessity for emptying its contents into the bowel no longer exists, the opening has become useless and it gradually contracts.

A fistula is not itself a source of infection. We never hear, for example, of a primary local tuberculosis originating in a fistulous tract. An anal fistula, when tuberculous, is always preceded by a local tuberculosis.

LITERATURE.

1. Sänger: Centralblatt für Gynäcologie, 1884, No. 41, p. 630.

2. König: Ueber die Bedeutung der Spalträume des Bindegewebes. Volkmann's klin. Vorträge, No. 57. Chirurgie.

3. Schlesinger: Oesterreichischer Med. Jahrbücher, Hefte 1 und 2, 1878. Virchow-Hirsch, Jahresbericht für 1878; Bd ii. p. 579.
4. Lawson Tait: British Med. Journal, June 9, 1878.
5. Lawson Tait: Boston Med. Journal, March 14, 1881.
6. Martin: Archiv für Gynäcologie, 1881, p. 463, und 1882, p. 476; also Virchow-Hirsch, Jahresber. für 1882, Bd. ii. p. 531.
7. Feldmann: Diss. Göttingen, 1879. Virchow-Hirsch, Jahresbericht für 1880, Bd. ii. p. 567.
8. Lawson Tait: Transact. Obstetric. Society of London, May, 1883.
9. Lawson Tait: Ibid., November, 1883.
10. Gaillard Thomas: Philadelphia Med. and Surg. Reporter, March 3, 1883.
11. Zeiss: Centralblatt für Gynäcologie, No. 47, 1883.
12. Thornton: Transact. Obstetr. Soc. London, June, 1883.
13. Baer: American Journal of Obstetrics, July, 1883.
14. Proschownik: Deutsche med. Wochenschrift, Nos. 36, 37, 1883.
15. Stone: THE MEDICAL NEWS, Philadelphia, Aug. 23, 1884.
16. Lee: American Journal of Obstetrics, June, p. 463.
17. Lusk: Ibid., April, p. 383.
18. Quetsch: Centralblatt für Gynäcologie, No. 19, 1884.
19. Martin: Chicago Med. Journal and Examiner, August, 1884.
20. Goodell: American Journal of Obstetrics, August, 1884, p. 858.
21. Jones: Ibid., November, p. 1155.
22. Thomas: Ibid,
23. Dawson: Ibid.
24. Polk: Ibid., February.
25. Lawson Tait: Transact. Pathol. Soc. London, xxxiii. p. 202. Harveian Soc., London Lancet, March 10, p. 473. Medical Times, Sept. 6, p. 318.
26. Saxage: Brit. Med. Journal, March 8, p. 453.
27. Malin: Transact. Med. Soc., London, Oct., p. 228.
28. McDonald: Edinburgh Med. Journal, August.
29. Lediard: Lancet, Sept. 20, p. 493.
30. Chapmann: Archives de Tocologie, Nov., p. 964.
31. Martin (Aurelius): Archiv für Gynäcologie, Bd. 23, p. 414.
32. Gusserow: Charité Anallen, ix. Jahr.
33. Sänger: Centralblatt für Gynäcologie, No. 32.
34. Schröder: Ibid., No. 4.
35. W. H. Byford: Chicago Med. Journ. and Exam., June, 1885, p. 510.
36. H. T. Byford: Ibid., January, 1886, p. 7.
37. Péan: Diagnostique et Traitement des tumeurs de l'abdomen et du Bassin, t. ii. p. 155.
38. Schröder: Krankheiten der weiblichen Geschlechtsorgane, Leipzig, 1880.
39. Emmet: Principles and Practice of Gynecology, p. 861.
40. Loc. cit., 510.
41. Loc. cit., p. 7.
42. Loc. cit., p. 13.

DR. W. W. JAGGARD submitted an extract of a letter from Dr. Paul F. Mundé, received about the fifteenth of February, who writes: "I do not agree with Dr. Byford's rectal treatment, as a rule, and certainly have not in my quite extensive experience found true laparotomy required to evacuate and drain a pelvic abscess. I mean opening the peritoneal cavity. Neither has my experience been that of Dr. Dudley, who says that the mortality from abscess opening into the rectum is great. I have seen only one case that I thought must die, in which there was a spontaneous rectal perforation."

DR. HENRY T. BYFORD said that a few years ago Sir James Y. Simpson invented the operation of division of the cervix for uterine flexures. Almost all gynecologists began performing it, and in a short time had done more harm than good with it. Only a few years since, Dr. T. A. Emmet invented the operation of trachelorrhaphy. While justly maintaining that it is an exceedingly valuable operation in proper cases, he has recently stated that it may have done more harm than good. A short time ago, Lawson Tait invented a method of treating pelvic abscess by laparotomy, and surgeons are resorting to it with a certain degree of success. The method is undoubtedly gaining favor, and bids fair to be employed with disastrous frequency, and possibly do more harm than good. In endeavoring to fix the limits of the usefulness of laparotomy for pelvic abscess, we must go beyond the recorded experience of the laparotomists, for the records are not yet all in. He understood that Tait opens the abdominal cavity only in those cases which cannot be reached from below.

DR. FENGER remarked that Tait does not operate through the rectum. He performs laparotomy when he cannot open through the vagina.

DR. BYFORD continuing: Then we may say that abscesses like the one reported (which point above) should be opened by a simple incision, without entering the abdominal cavity; and those which point in the vagina should be opened and treated through the vagina. Now the question is, should those which point in the rectum be opened and treated through the rectum? What he claims is, that the procedure has not been thoroughly tested by the profession. As has already been stated by Dr. William H. Byford, we can, by thoroughly stretching the sphincter of the anus, get into almost any abscess which is truly pelvic in its nature, and points, or opens, in the lower four or five inches of the rectum. We can dilate the opening, and then enlarge it with the fingers, without the use of any cutting instruments, against which objection has just been made. The danger of hemorrhage from the wounding of bloodvessels is certainly very much less than the dangers in operating by laparotomy. There must be danger connected with any operation, but in the one just mentioned it is reduced to the minimum. The entrance of feces is of minor importance, for in the presence of perfect drainage and antiseptic irrigations, they do not remain in the cavity, and do not prevent it from filling in with granulations from the top and sides, and contracting and healing. Therefore, dilatation per rectum should be first tried; and if any cases, after trial, cannot be thus successfully treated, laparotomy, or some other substitute, should be considered. Dr. Fenger had quoted and then criticised his arguments against laparotomy, without mentioning that he was only referring to abscesses that could be reached through the rectum. With regard to recto-abdominal fistulæ, he must still maintain that the abscess will close up and get well more readily with one opening into the rectum, properly

made or enlarged, than if such a fistula exist in which the rectal outlet has not been enlarged. Gases and feces will almost invariably pass through and keep the abdominal end of the fistula open, and will lodge in septic pockets, or sinuses, resulting from the inadequacy of the opening at the rectal end. If we close such a fistula above, we have the unfavorable conditions of the original abscess, and must still practise dilatation per rectum. Martin's method of instituting perfect drainage through the vagina, and then closing the abdominal opening, would undoubtly be sound in principle, were it not that an operation through the vagina should take precedence when practicable; and when not, a single opening from above must be regarded as fulfilling the requirements, as is proved by the experience of Tait and others. Hence, Martin's method must eventually be relegated to the exceptional procedures.

He did not wish to be understood as not believing in laparotomy for pelvic abscess, but that this procedure, being popular and new, it is apt to be resorted to unnecessarily and unjustifiably. The remarkable success of Tait should not be allowed to mislead us. His mastery of *technique* and fertility of resource, in abdominal surgery, justify him in assuming risks which others may not.

BALTIMORE ACADEMY OF MEDICINE.

Stated Meeting, March 2, 1886.

DR. H. P. C. WILSON reported a case of

CIRCUMSCRIBED PERITONEAL DROPSY SIMULATING OVARIAN DROPSY.

The case could not be called one of cystic dropsy, because the fluid was not contained in a distinct sac; but, by adhesions from general peritonitis, the fluid was restricted to the front and lower part of the abdomen, and not allowed to gravitate throughout its whole extent. Change of the patient's position did not change the position of the fluid, and there was nothing in her history or symptoms to cause us to suspect a former, or recent, peritonitis. She had never been sick a day in her life, and all her organs were acting well.

Mrs. James P., married, aged thirty-eight, the mother of seven children—twins once, four miscarriages—four times delivered with forceps. Began to menstruate at fourteen. Noticed a swelling in the abdomen September 1, 1885. Could not locate its beginning in either groin or lower abdomen. Has had regular menstruation always, except when pregnant. She was sent to Dr. Wilson by Dr. N. B. Baker, one of the most eminent physicians in Martinsburg, with the statement that she had an ovarian tumor. He confirmed his diagnosis, when she was admitted to the Union Protestant Infirmary, February 12, 1886.

She had a prominent fluctuating tumor of the lower abdomen. Dull on percussion to two inches above the umbilicus, dull in either groin, and presenting the characteristics, round and prominent, of a cystic tumor of the ovary. Percussion was clear in both lumbar regions. Changing the patient's position did not change the lines of dulness anywhere. There was no tenderness over the abdomen, to any amount of thumping or pressure.

The uterus was free in the pelvic cavity, and measured three inches by the sound. She had the facies ovariana. He had no doubt that the case was one of cystic disease of the ovary.

He again reviewed his former examination, and was satisfied that he had a simple cyst of the ovary, without complications, to deal with.

Dr. Robert T. Wilson cut carefully into the abdominal cavity, making an incision of three inches down to the peritoneum, and entering the cavity by an opening of about half an inch. Immediately, there was a gush of a greenish-yellow fluid, and turning the patient on her side, about one and a half gallons escaped; enlarging this opening to three inches and looking in, a solid tumor was discovered about nine inches long, six inches broad, and three inches thick. The walls of the abdominal cavity were festooned with recent lymph, and patches of the same were seen everywhere. The hand, passed in, found adhesions everywhere. The uterus and ovaries were normal, but we could not determine by the touch and sight what this tumor was, till we had lifted it from the abdominal cavity, and found it was made up of coils of intestine agglutinated with lymph. It was so firm and solid that, at first sight, it was hard to believe it a mass of intestines. It was not agglutinated to other abdominal viscera, but seemed to be free in the peritoneal fluid. The mass was returned to the abdominal cavity, the abdominal opening closed with seven silver wires, and the wound dressed as usual in ovariotomy. Thus the case which Dr. Wilson was sure was ovarian dropsy, turned out to be localized peritoneal dropsy, the result of peritonitis. This woman told him before the operation, and has several times confirmed her statement since, that she had never been sick a day in her life, except during confinements, and her youngest child is now two years old. Dr. Baker, who has been her physician ever since her marriage, confirmed her statement.

For the diagnosis there was a fluctuating tumor, occupying the lower part of the abdominal cavity, and the abdomen was rounded prominently about the umbilicus. In the dorsal position, it did not bulge out to either side. There was clearness on percussion in both lumbar regions. Changing the position of the patient did not change the lines of dulness on percussion. She had no tenderness on abdominal pressure. All of her organs were functionally normal, and the pelvic viscera were as they should be in such a supposed ovarian cyst. No anasarca, no œdema of lower extremities.

Dr. Wilson did not see how we are to avoid falling into the error into which he had been led. Had he tapped her (which should never be done in ovarian tumors if possible), he would have been none the wiser, but would rather have had his diagnosis confirmed by the solid tumor which would have remained. He had not implicit confidence in the ovarian cell as a means of diagnosis.

The greater his experience, the more he is impressed with the propriety of exploratory incisions in all cases of abdominal tumors where life is involved. He is convinced that many more lives are lost for the want of such incisions, than on account of them.

The case did well, and on the sixteenth day was out of all danger.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, March 5, 1886.

THE SECOND VICE-PRESIDENT, GEORGE WILKINS, M.D., IN THE CHAIR.

RUPTURE OF THE HEART: SURVIVAL OF PATIENT FOR TWENTY HOURS.

DR. WYATT JOHNSTON exhibited a heart, removed from a woman æt, seventy-four, who was the subject of fatty degeneration and aneurism of the left ventricle. The patient had been in the surgical wards of the Montreal General Hospital for some time, suffering from diffuse cellulitis of the right forearm and arm. She was steadily progressing toward convalescence, when suddenly, one morning about two o'clock, she complained of great faintness, weakness, and distress. The house surgeon, who was called, examined her heart, but found no signs sufficient to account for the symptoms. There was no murmur. The visiting surgeon, when on his daily rounds, at 1 P. M., examined her and found a well-marked systolic murmur. Dr. Ross was asked to examine her, which he did. The patient was suffering at this time from syncope, and her radial pulse was hardly perceptible. She lived till 10 P. M., twenty hours from first attack.

At the autopsy, the pericardium was found to contain eight ounces of fluid blood, and a small amount of firm clot was adherent to the anterior surface of the heart. On dissection, the heart showed extensive fatty degeneration; the valves were healthy, but in the left ventricle a pouched sac the size of a walnut was found: this was situated in the wall of the septum, and bulged toward the right ventricle. The sac communicated directly through a small opening two mm. in diameter, with a lacerated external opening of large size in septum. The external orifice was situated to the right side of the anterior coronary artery, and was infiltrated with extravasated blood. The arteries of the patient were very atheromatous, and in the abdominal aorta immediately above the bifurcation was a fusiform sacculated aneurism. At this point there were extensive fatty changes of the intima, with formation of cholesterin. The sac contained a large, soft, dark, non-adherent clot.

DR. GEORGE ROSS, alluding to the above case, said that when he first examined the patient, some twelve hours after the syncopal attack, he found the heart feeble, and a loud systolic blowing murmur was heard in the lower sternal region only. This was in the situation of a tricuspid murmur, yet he did not think it was valvular. He found it difficult to explain the physical signs. The character of the murmur was, of course, cleared up by the autopsy. The most remarkable circumstance about the case was the length of time the patient lived with a ruptured heart—about twenty hours. This was explained by the smallness of the opening, which would allow blood to flow but slowly into a pericardium already distended. He thought the peculiar murmur might have been due to the formation of a current in the aneurismal sac which was found in the left ventricle.

DR. WILKINS thought that possibly the murmur might have been produced by the squeezing out of a small quantity of blood through the small opening in the wall of the heart during each systole.

CALCULOUS KIDNEY.

DR. JOHNSTON showed the kidney of a patient who had died of heart affection, with thrombosis of right middle cerebral artery. Before death, pus and blood had been observed in the urine. The right kidney was enlarged to double its normal size, and distended with fluid. The renal tissue was destroyed, and organ converted into a series of cysts, containing fetid ammoniacal fluid, tissue débris, and uric acid granules. In the inferior extremity only a small amount of renal tissue remained, and in the calices were several small uric acid calculi. This portion of kidney alone communicated with the ureter.

CORRESPONDENCE.

EXTRAUTERINE PREGNANCY CHANGED TO INTRAUTERINE BY THE GALVANIC CURRENT.

To the Editor of THE MEDICAL NEWS.

SIR: I have this evening, for the first time, seen the article by Dr. Stabler, in your issue of February 27th, and the comments thereon by your semi-anonymous correspondent, E. Y. D., in your issue of March 6th.

As it happens, I had already marked several parts of Dr. Stabler's article by a ?, meaning thereby to indicate that there were doubtful points in his paper, such as the absence of the detection of a tumor to the side of the uterus by bimanual palpation; the insufficiency of proof that the uterine cavity was empty simply because the sound entered only 2¾″, and no fluid followed the use of the sound, and because abortion was not induced by applications to the interior of the uterus. In fact, with due deference to Dr. Stabler's diagnosis, and appreciating full well the difficulties attending, in some cases, the recognition of the presence of a fœtus within the uterus in the early months, there are certain defects in his report which almost involuntarily forced upon me a doubt as to whether his diagnosis of extrauterine fœtation was correct. For I have seen a uterus in the early months of pregnancy with so irregular an outline as to render it almost impossible, even to the expert touch, to decide precisely where its wall ended and the adjacent tissues began; and I know of a case where the sound entered only 2½″, when later on the uterus was found to contain a large fleshy mole, and of another where the dilator, curette, and repeated intrauterine faradization failed to bring on abortion or even the menorrhagia which the treatment was intended to induce.

Hence I am inclined to side with E. Y. D. in one of his criticisms of Dr. Stabler's case; but I cannot accept his objection to the possibility of the embryo being transferred from the tube to the uterine cavity by muscular contraction, because, as he says, there is "in these cases *thinning* . . . . of the muscular coat of the tube."

In the first place, it is not exactly claimed by those who have reported cases of this transfer of the extrauterine embryo to the uterine cavity, that the embryo was situated *wholly within the tube*, but rather in that portion of the tube which traverses the uterine wall, a hypertrophy of which during early gestation is not at all improbable. It is true, rupture does occur in these cases

by thinning of one portion of the sac. But, if the least resistant portion of the intramural ovisac happens to be the uterine orifice of the tube, a rupture at another point will probably not take place, since the ovum will most easily find its way into the uterine cavity. This point was made by me in the letter to THE NEWS of December 26, 1885, referred to by Dr. Stabler.

In the second place, your correspondent, E. Y. D., overreaches himself in his effort to be funny, when he compares my belief in the possibility of the electric current exciting sufficient muscular contraction to "move an embryo a few inches along the *Chemin de Fallopius*," to the power of electricity to move a locomotive engine, and to do other wonderful feats. If the interrupted electric current can so increase the peristaltic action of the intestines as to overcome obstinate constipation, a fact which every practical electro-therapeutist can attest, there is nothing strange in the fact claimed for the same agent in certain favorable cases of tubo-uterine gestation. I must, besides, remind your correspondent that in the case of transfer of the fœtus from the tubo-uterine sac to the normal uterine cavity, which I myself have reported, spontaneous uterine contractions, unaided by electricity, produced the transfer. But I am decidedly of the opinion that such a transfer of the fœtus must be greatly aided by the interrupted electric current.

I am yours,

PAUL F. MUNDÉ.

NEW YORK, March 15, 1886.

NEWS ITEMS.

NICOTIA.—The French Society for the Prevention of the Abuse of Tobacco has received fifty-two memoirs for the concours of 1885. Three of these were for the prize in medicine, seventeen for the institutor's prize, five were relative to the influence of tobacco on cholera, five discussed the means for preventing the sale of tobacco to children, and twenty-two were upon divers allied topics. The distribution will occur on the second of May.

M. PASTEUR has just received from the Count de Laubespin the sum of 40,000 francs to increase his facilities for the prevention of hydrophobia.

MOSS AS A SURGICAL DRESSING.—For some months past, moss has been employed as a surgical dressing in the Teaching Hospital in St. Petersburg; it costs fifty kopecks a pood (a shilling for thirty-six pounds). The results have been very satisfactory.

THE CURE OF TUBERCULOSIS.—A fund has been created in Paris for the institution of experiments with a view to the cure of tuberculosis. Large sums are already subscribed for this object.

STATUE TO CLAUDE BERNARD.—A statue, erected to the memory of Claude Bernard, the eminent physiologist, was unveiled on February 7, in the presence of the Minister of Public Instruction, delegates from the Institute and University of France, amongst whom were also present MM. Paul Bert, Pasteur, Renan, and other scientific and literary men. The statue is of bronze, and considered a very good likeness, representing Claude Bernard in a pensive mood, as he was often seen in his laboratory, while he was meditating over a new problem from which he had not yet formed any positive deductions.

REMOVAL OF QUARANTINE.—Supervising Surgeon-General John B. Hamilton has issued, with the approval of the Executive, the following circular to the medical officers of the Marine-Hospital Service, customs officers, and others concerned:

Official information having been received that the smallpox, which recently prevailed as an epidemic in certain provinces of the Dominion of Canada, is now under control; therefore, the regulations issued October 10, 1885, for the maintenance of quarantine inspections on the northern frontier of the United States, are hereby revoked.

DR. FLINT'S LIBRARY.—Dr. Austin Flint has bequeathed his valuable library to the New York Academy of Medicine.

BUREAU OF PUBLIC HEALTH.—The House Committee on Commerce instructed Representative Davis to report favorably a bill to establish a Bureau of Public Health in the Interior Department, to be presided over by a Commissioner of Health, at an annual salary of $4500. The bill abolishes the National Board of Health, transfers the duties of preparing reports and securing information regarding sanitary and other matters affecting the public health, of framing rules and regulations for the prevention of disease, and of making investigation into the origin and prevention of contagious and infectious diseases, from the Marine-Hospital Service and the National Board of Health to the Bureau thus created.

DEATH OF MR. COOPER FORSTER.—Mr. Cooper Forster, last year President of the Royal College of Surgeons, died in London on the second of this month, in the sixty-third year of his age. He had been travelling in Italy for a few months, and his fatal illness is attributed to a subacute gastritis, resulting from the use of foreign foods.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 16 TO MARCH 22, 1886.

HOFF, JOHN VAN R., *Captain and Assistant Surgeon.*—Ordered from the Department of California to the Department of Missouri. —*S. O.* 60, *A. G. O.*, March 13, 1886.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING MARCH 20, 1886.

BAILHACHE, P. H., *Surgeon.*—Detailed as Chairman of Board of Examiners, March 15, 1886.

FESSENDEN, C. S. D., *Surgeon.*—Detailed as member of Board of Examiners, March 15, 1886.

PURVIANCE, GEORGE, *Surgeon.*—Detailed as of Examiners, March 15, 1886.

THE MEDICAL NEWS will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*